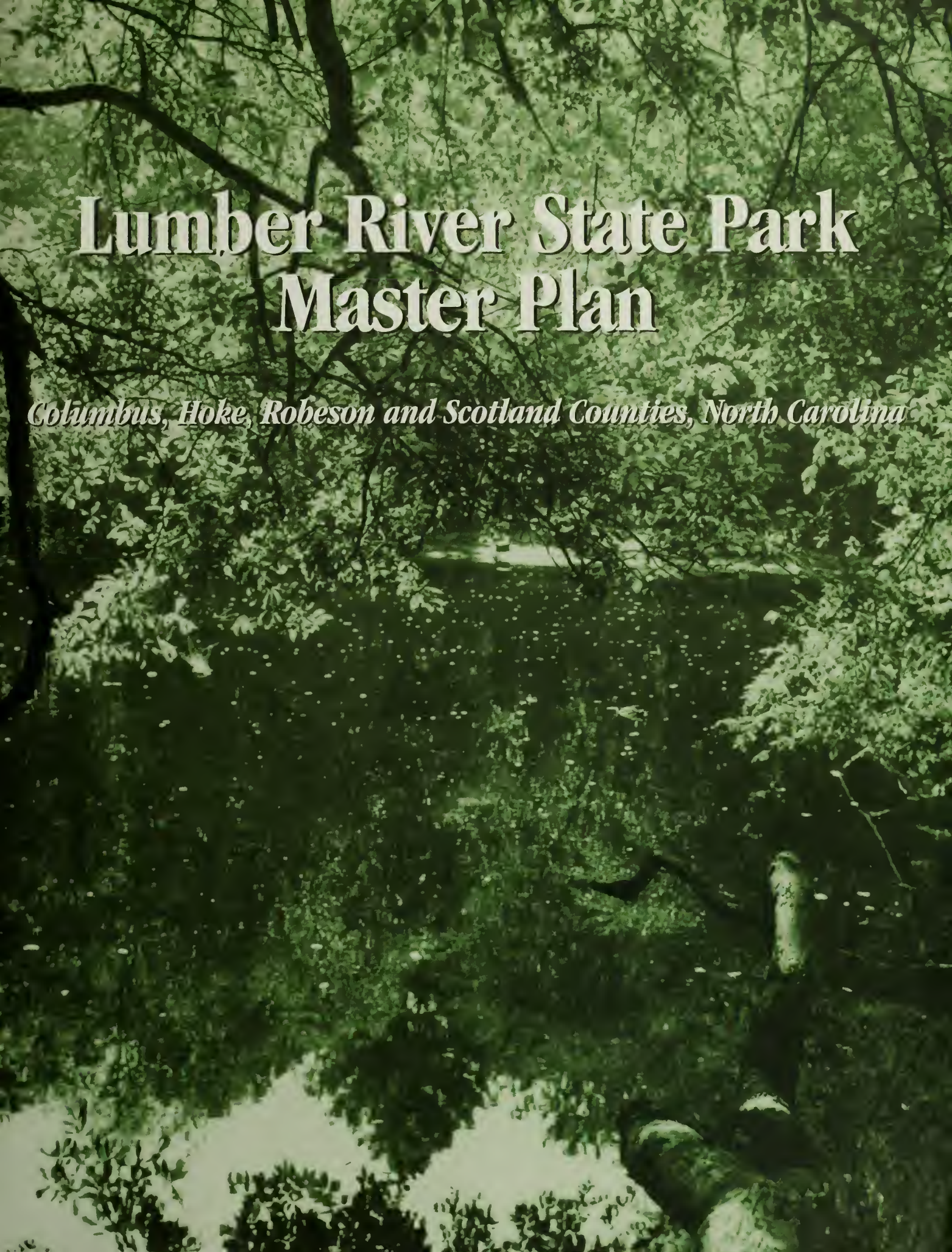

Lumber River State Park Master Plan

Columbus, Hoke, Robeson and Scotland Counties, North Carolina

Prepared by:

The Department of Parks, Recreation and Tourism Management
North Carolina State University

for the

Department of Environment, Health and Natural Resources
Division of Parks and Recreation

through funding provided by

Carolina Power and Light Company
and the generous contributions of numerous individuals, groups, businesses, and local governments and the leadership of the Lumber River State Park Advisory Committee

July, 1995

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I. Introduction

Interest in designation of the Lumber River within the Natural and Scenic Rivers system was first expressed by the Indian Unity Conference in 1981. Over the years, the support for designation was sustained through the efforts of a number of citizens' interest groups. The Lumber River Basin Committee (LRBC) was the driving force behind the river's designation and remains involved in a variety of activities that promote the river. It was the LRBC that petitioned the Robeson County Commissioners in 1984 to request that the N.C. Division of Parks and Recreation conduct a formal study of the river for designation. The Department of Natural Resources and Community Development conducted a qualification study in 1986 and a feasibility study in 1988, and in 1989 the Lumber River was designated as a component of the N.C. Natural and Scenic Rivers System and as a state park by the N.C. General Assembly. In 1990, the Lumber River State Park and State River Citizens Advisory Committee was appointed by the secretary of the N.C. Department of Environment, Health and Natural Resources to help guide in the establishment and development of a state park. The Committee became a major force behind the production of this Lumber River Master Plan, helping to raise the funds to match a $40,000 grant from Carolina Power & Light Company that enabled it to be prepared and guiding its development. Without the commitment and dedication of Committee members, this plan would not have been possible.

The Lumber River was the fourth river to be included in the North Carolina Natural and Scenic Rivers System. The others are the Linville River (1975), the New River (1976), and the Horsepasture River (1986). The Lumber River is a significant addition to the Natural and Scenic rivers system as it is the longest, designated blackwater natural and scenic river (115 miles) not only in North Carolina, but quite likely in the United States.

Legal Mandates

Four legal documents guide the development of the Lumber River as a state park: the North Carolina Constitution, the State Parks Act, the Natural and Scenic Rivers Act, and the Lumber River legislation.

The North Carolina Constitution

Article XIV, Section 5, of the North Carolina Constitution stipulates that the policy of the state is to conserve and protect its land and waters for the benefit of all its citizenry. To achieve this end, the state and its political subdivisions should acquire and preserve park, recreation and scenic areas, control and limit the pollution of air and water, control excessive noise, and, in every other appropriate way, preserve its forests, wetlands, estuaries, beaches, historic sites, open lands, and places of beauty as a part of the state's common heritage.

State Parks Act

Enacted in 1987, the North Carolina State Parks Act formally recognized the unique heritage of the state, particularly its archaeological, geological, biological, scenic, and recreational resources. It further recognized the need to preserve and manage this heritage in perpetuity for use by North Carolina's citizens, their visitors, and their descendants. To carry out these purposes, the Act clearly defined the mission of the state parks system for the first time: to manage representative examples of these resources in order to promote pride in and understanding of the state's natural heritage. Management categories include state parks, natural areas, recreation areas, trails, rivers, and lakes.

The State Parks Act mandates preparation of a general management plan (GMP) for each park. Each GMP is to include a statement of park purpose. It should also include a statement of management direction and an analysis of the major resources and facilities on hand to achieve park purposes. The Act also stipulates that only the General Assembly can authorize new parks, and that adequate appropriations for land acquisition, development and operations must accompany newly established state parks.

Natural and Scenic Rivers Act

The North Carolina Natural and Scenic Rivers Act of 1971 was passed to preserve, protect and maintain certain free-flowing rivers or their segments and adjacent land for their outstanding natural, scenic, educational, geological, recreational, historic, fish and wildlife, scientific and cultural value of present and future benefit to the people. The Act requires that a public hearing be held in the counties through which a river flows before it can be designated. Because the Lumber River has been officially included within the Natural and Scenic Rivers System, any type of state park development must be within the legal requirements of the Natural and Scenic Rivers Act of 1971.

Segments of the Lumber River have been classified as *natural, scenic,* and *recreational.* The uppermost part of the river from S.R. 1412 (Turnpike Bridge) to Back Swamp is the narrowest section of the river, measuring an average of 40 feet in width. This section is classified as *scenic*, which is defined by the Act as largely primitive, undeveloped, and free of impoundments, but accessible by roads. This classification lends itself to wilderness-type experiences, such as solitude and wildlife viewing. The middle portion from Back Swamp to Jacob Branch is wider, averaging 75 feet, and is classified as *recreational* because it offers outstanding recreational and scenic values and is largely free of impoundments, but has development and an extensive road system along its banks. The segment downstream of Jacob Branch to the border with South Carolina varies in width from 30 to 75 feet and is classified as *natural*, with the exception of the portion within Fair Bluff city limits, which is designated *recreational.* A *natural* river segment is defined by the Act as unpolluted, surrounded by lands in an essentially primitive condition, free of man-made impoundments, and generally inaccessible except by trails.

Lumber River Legislation

Section 156 (c) of Chapter 752 of Sessions Laws - 1989 created the Lumber River State Park as a component of the state parks system to be managed as a state river. The legislation directed the Division of Parks and Recreation to *"... prepare a general management plan for the Lumber River State Park to include a master plan which shall recognize and provide for State and local government protection of the various parts of the river so as to preserve its outstanding character in perpetuity."*

Park Purposes

The purposes of the state parks system and the Lumber River State Park and State River are expressed in the Mission Statement for the State Parks System and the Lumber River State Park Purpose Statement.

Mission Statement for the State Parks System

The North Carolina state parks system exists for the enjoyment, education, health, and inspiration of all our citizens and visitors. The mission of the state parks system is to conserve and protect representative examples of the natural beauty, ecological features and recreation resources of statewide significance; to provide outdoor recreation opportunities in a safe and healthy environment; and to provide environmental education opportunities that promote stewardship of the state's natural heritage.

Park Purpose Statement

The State Parks Act mandates that a statement of purpose for each park be prepared based on its relationship to the Systemwide Plan and its classification. The following park purpose statement has been approved by the Division of Parks and Recreation and by the Lumber River State Park and State River Citizens' Advisory Committee:

In response to local interest expressed by government units, non-profit organizations and individuals, the 1989 General Assembly authorized the Lumber River State Park and State River. The General Assembly action followed a study of the river and its corridor, public meetings and hearings, and a qualification and feasibility report on the Lumber River made to the governor and General Assembly. The report recommended adding the Lumber River to the state parks system because the river was an outstanding resource worthy of inclusion; strong local support for such action existed; and the addition of a blackwater river was consistent with and addressed a need identified in the Systemwide Plan. The Lumber River legislation called for development of a plan to *"... recognize and provide for State and local government protection of the various parts of the river so as to preserve its outstanding character in perpetuity."*

The Lumber River's significant biological resources include the natural communities of the river, floodplains, and uplands. The floodplain of the river contains extensive examples of the bottomland, swamp, and sandbar communities typical of blackwater rivers, as well as the aquatic communities of the river channel and backwaters. Unusual upland communities include the extremely dry, barren sand hills on relict sand dune deposits at several places along the floodplain. The rare sarvis holly (*Ilex amelanchier*) is scattered along much of the river. Other rare species include woody goldenrod (*Chrysoma pauciflosculosa*), Carolina bogmint (*Macbridea caroliniana*), and alligator (*Alligator mississippiensis*), as well as several species of fish and marine fossils. Animal life along the river is abundant and varied.

The 115-mile-long, free-flowing Lumber River offers a variety of scenic resources as it meanders through North Carolina's Coastal Plain region. Outstanding scenic views, including bottomland hardwoods, cypress-gum swamps, and upland pine forests, exist along the river's extensive undeveloped corridor. The water reflects the beautiful and peaceful shoreline and swamps. Light and darkness contrast as sunlight filters through the dense forest canopy and dances on the tea-colored water. Swamplands are broken occasionally by higher ground landings and modern construction, particularly on the natural river segments.

The significant recreational resources include the extensive length of the river corridor, opportunities for water-based recreation, the corridor's natural character, and upland areas suitable for state park development. Recreational activities, such as hiking, nature study, fishing, canoeing, camping, and picnicking, should be compatible with protection of the park's outstanding natural resources and the river's designation as a state river. The Lumber River offers high quality fishing and small-craft boating and canoeing in an uncrowded setting. The river's value as a canoe trail was recognized in 1978 when the upper Lumber River was designated as North Carolina's first recreational water trail and in 1981 with its designation as a national canoe trail. In 1984, the lower Lumber River was designated as a state canoe trail. Visitors should be able to experience the natural setting during multi-day canoe trips. Interpretive themes should focus on the natural resources of the river and surrounding Natural Heritage Priority Areas as well as on Native American culture.

The Lumber River illustrates the geomorphic processes and landforms typical of blackwater rivers, including meanders, sandy point bars, low natural levees, sloughs, and backwaters formed by abandoned channels. It contains several examples of aeolian sand deposits, commonly associated with large rivers farther south but uncommon in North Carolina. A few outcrops along the river expose Coastal Plain formations and abundant marine fossils.

Pottery, tools, arrowheads, and other archaeological artifacts indicate that the limited high ground adjacent to the river has been in continuous use since prehistoric times. While there is potential for additional discoveries, such continuous use makes the discovery of significant undisturbed archaeological sites unlikely. Cultural features, including relict bridge abutments, tram bridges, dock pilings and canals, attest to the importance of the lumber and

naval stores industries in the early development of the region.

The Lumber River Natural and Scenic River and State Park exist to preserve the beauty of the river and to protect its water quality and adjacent lands by retaining natural and scenic conditions. The Division of Parks and Recreation is charged with preserving its biological, scenic, recreational, geological and archaeological resources and providing park experiences that promote pride in and understanding of this natural heritage.

Relevant Planning Documents

The legal mandates gave rise to documents relevant, directly and indirectly, to the planning process: the Systemwide Plan for the North Carolina State Park System and the Statewide Comprehensive Outdoor Recreation Plan. These documents were reviewed for their significance to the development of the Lumber River State Park master plan. The City of Lumberton Parks and Recreation Master Plan was also reviewed.

Systemwide Plan for the North Carolina State Park System

The Systemwide Plan for the N.C. State Park System is mandated by the State Parks Act. The current plan recognizes the significance of the Coastal Plain region for its archaeological, biological, geological, recreational and scenic importance. The plan noted that there was no representation of blackwater rivers and swamps within the state parks system. The Lumber River was cited as an excellent example of such rivers and swamps, which have high priority for expansion within the system. Similar priorities are placed on the geologic theme of fossil sites, the recreation themes of camping, adventure and open space, and the scenic themes of outstanding vistas, cliffs and swamps. The plan also recommends that the number of rivers in the Natural and Scenic Rivers system should be doubled.

Statewide Comprehensive Outdoor Recreation Plan for North Carolina

Outdoors North Carolina 1990–1995, the Statewide Comprehensive Outdoor Recreation Plan (SCORP), provides some guidance in preparing the Lumber River State Park Master Plan. The SCORP recognizes the region's increase in people over 65 and under 10, the increase in high-tech industries and urbanization, the increase in poor families and single-parent households, and the tendency towards a more cosmopolitan society and better-educated citizens. These changes may affect the type of recreation programs and facilities offered within the context of decreasing recreational space and funding. The SCORP presents standards for basic levels of outdoor recreation services, based on population, and lists the number and type of recreation facilities and amount of park acreage needed to serve a county or a region.

Results from a national survey of recreation participation reported in the SCORP revealed canoeing to be the recreational activity that exhibited the greatest growth nationwide between 1960 and 1983. The five top outdoor recreational pursuits of North Carolinians identified by a statewide study were walking for pleasure, driving for pleasure, viewing scenery, participating in beach activities, and visiting historical sites. Swimming, fishing and picnicking also ranked high in popularity, followed by canoeing/kayaking.

The SCORP survey indicated that many citizens were interested in pursuing new recreational activities. Among the top ten activities desired by respondents were camping (tent or vehicle), picnicking, beach activities, freshwater fishing, attendance at outdoor cultural events, visiting natural areas, and visiting historical sites (Division of Parks and Recreation: North Carolina Department of Environment, Health and Natural Resources, 1989).

Tables I-1 and I-2 show the degree to which selected outdoor recreation opportunities and park acreage are provided in the four-county study area, based on the SCORP standards for North Carolina. It is clear there is a need for recreational facilities in the four counties through which the Lumber

River flows (Table I-1). The tourism potential of the area, particularly near I-95, cannot be overlooked. Recommendations given in the SCORP may not go far enough to accommodate tourists, since the SCORP standards are based on county population figures.

Table I-1. Percent Facility Provisions in the Lumber River Region Based on North Carolina SCORP Standards

Activity	Hoke	Scotland	Robeson	Columbus
Picnic Tables	0%	37%	63%	12%
Camp Sites (Tent and Trailer)	0%	0%	0%	0%
Trails	0%	0%	5%	0%

The SCORP also places parks into categories (Table I-2). Two categories relating to the Lumber River are the regional park reserve and the dispersed use/conservancy area.

Regional park reserves generally reserve 80 percent of the land for conservation and use the rest for recreation. A typical unit is between 3,000 to 5,000 acres and includes state parks and natural resource based county parks. Activities include nature study, picnicking, camping, fishing, boating, swimming, and various trail uses.

Dispersed use/conservancy areas are subject to multiple-use management emphasizing timber, agricultural, and mineral production; recreation is secondary. Linear parks, state scenic rivers, and state gamelands fall into this category.

Table I-2. Park Percent Sufficiency Provisions in the Lumber River Region Based on North Carolina SCORP Standards

Type of Park	Hoke	Scotland	Robeson	Columbus
Neighborhood	18%	45%	103%	16%
Community	0%	4%	21%	0%
District	0%	0%	20%	130%
Regional	0%	0%	0%	25%
Dispersed Use	9%	2018%*	99%	175%

* This figure reflects lands used largely for hunting on the Sandhills Game Lands.

City of Lumberton Master Plan Recommendations

The Lumberton Parks and Recreation Master Plan (1991) has recommended that there be greenways and trails for hiking, walking and bicycling to meet the leisure pursuits of residents and for interstate highway travellers from I-95. The plan also recommends that the river be used for canoeing and associated activities such as camping. The former and present park and recreation directors of Lumberton have suggested that the activity needs of the Lumberton area identified in the SCORP and elsewhere be included in the plan. Activities could also consist of special events such as raft racing or a river festival. Other priorities for consideration include playgrounds and picnic areas for families travelling on I-95.

Public Involvement

In 1989, the N.C. Division of Parks and Recreation, in compliance with the Natural and Scenic Rivers Act, held public hearings concerning river designation. The general public was notified through two press releases to the local media, advertisements in local newspapers, and by 350 notices mailed to local property owners and other interested citizens. In addition to the recommendations in the planning documents discussed previously, input for this master plan was provided by a number of government agencies. Among these were county commissioners in Robeson, Columbus and Scotland

counties; citizen groups such as the Lumber River Basin Committee and the Lumber River State Park and State River Citizens Advisory Committee. These committees helped determine needs through meetings with other groups and individuals. Helpful information was also obtained through discussion with regional park officials of the city of Lumberton, and Hoke, Scotland, Robeson and Columbus counties. Other officials consulted were the mayor of Fair Bluff and the directors of the N.C. Indian Cultural Center and the Lumber River Council of Governments.

Lumber River Natural and Scenic River Study Recommendations

Public hearings were conducted in Robeson and Columbus counties prior to the designation of the Lumber River as a natural and scenic river. The comments from those meetings and from mailed responses provided insight into public support of and opposition to the river's designation as a natural and scenic river. The vast majority of those attending the hearings supported the river's designation, with most recommendations focusing on environmental protection and conservation, nature and cultural interpretation, river-based recreation, and administration and management. Specific recreational needs identified included canoeing, swimming, fishing, contemplation, hiking, camping and picnicking.

Protection and conservation issues of importance to the public included maintenance of water quality, environmental aesthetics, wildlife preservation, swampland and natural area protection, control of development, and archaeological conservation and preservation of Native American artifacts. Interpretation and education recommendations addressed ecological, archaeological, and historical matters, with specific support for an interpretive museum. Administration and management concerns included general law enforcement for the protection of both visitors and park resources.

NCSU Survey Recommendations

The concerns and desires expressed at the public hearings were reinforced by an open-ended opinion survey conducted by NCSU representatives at four meetings within the region. Those meetings were with the Lumber River State Park and State River Citizens Advisory Committee, the Lumber River Basin Committee, the Whiteville Lions Club, and a Lumber River State Park master plan update meeting sponsored by CP&L. Of the approximately 150 participants in those meetings, 46 responded to the survey.

The 10 most frequently listed activities and desires, shown here in priority order, were:

1. canoeing
2. camping (primitive, group and recreational vehicle)
3. interpretation of natural, historical and archaeological resources
4. preservation of entire river ecosystem
5. fishing
6. swimming
7. trails for hiking and backpacking
8. strong enforcement of park rules
9 picnicking
10. limited access

Lumber River State Park and State River Citizens Advisory Committee Recommendations

The most recent interest survey was conducted by the Lumber River State Park and State River Citizens Advisory Committee of its members. The results showed strong support for canoe camping, with campgrounds located 10-20 miles apart, for a nature museum and exhibits, boardwalks and trails, interpretation, a camp store, and fishing. The respondents indicated a preference for one central park office. The survey results also indicated split opinions on picnicking, hunting, horseback riding, power boating and the number of park offices. There was no strong support for jet skiing or all-terrain vehicle (ATV) use.

Analysis of Public Input

An analysis of the foregoing public input reveals that the priorities to be addressed in developing the Lumber River state park are:

(1) conservation of natural resources, i.e., the river ecosystem, including water quality;
(2) preservation of archaeological/historical/paleontological/cultural resources; and
(3) development of appropriate recreational facilities.

These priorities were used to help guide development of the Lumber River master plan. Table I-3 shows the rankings of 11 outdoor recreation activities that have received considerable support for inclusion in the Lumber River State Park. Activities receiving the most support in the survey conducted by the Lumber River State Park and State River Citizens Advisory Committee and from the open-ended survey administered by NCSU were canoeing, fishing, primitive camping, visiting natural and/or historical areas, hiking and swimming. Also mentioned were picnicking, family and group camping, power boating and hunting. Horseback riding received limited support from the Advisory Committee, but was not mentioned by any of the respondents to the open-ended survey conducted by NCSU representatives at various regional meetings. There were two significant differences in the results of the SCORP and Lumber River surveys. The SCORP survey results showed canoeing and primitive camping ranked at 28 and 27, respectively, while the average rating of those activities from Lumber River surveys was 1 and 3. The outstanding characteristics of the Lumber River and its corridor for canoeing and primitive camping explain the difference.

Table I-3. Ranking of Recreation Demand

Activity	SCORP Survey*	LRAC Survey	NCSU Survey
Canoeing	28	1	1
Fishing	2	1	4
Primitive Camping	27	4	3
Visiting Natural/ Historical Areas	10 & 13	6	2
Picnicking	6	3	7
Hiking	15	7	6
Swimming	16	8	5
Group/R.V. Camping	4	5	9
Boating	24	10	8
Hunting	9	13	10
Horseback Riding	18	9	N/R

*Future Demand for Outdoor Recreation Activities, *Outdoors North Carolina 1990–1995* (SCORP Survey activities not included in the Lumber River surveys are not shown.)

II. The Region

The Lumber River region, located in south-central North Carolina, consists of the four counties through which the river flows: Hoke, Scotland, Robeson, and Columbus. A number of state roads and highways provide easy access to the river. Today it is a racially diverse region, mainly rural in character. What we know of its history is based on records and anecdotes of early European travellers, later settlers, and Native Americans.

History

According to poet John Charles McNeill (1874-1907), the Indian name of Lumbee was originally used for the river, from an Indian word that means "black water." Early European surveyors and settlers called it Drowning Creek. This name appears in Colonial records of 1749, which identify the river as a branch of the Little Pee Dee River. The name was changed by legislative action in 1809 to the Lumber River, most likely because of the river's heavy use by the lumber industry.

The earliest Native Americans, who may have lived in the region from as early as 20,000 B.C., were nomadic and subsisted through food-gathering and hunting (Mathis and Gardner, 1986). By the 18th century, the river and its associated swamps had become a melting pot for several Indian tribes, some of them refugees from tribes outside of the immediate region who had fled to the backwoods and swamplands from the coastal regions to escape the attacks of other more war-like tribes as well as the advance westward by Europeans and their descendants. It has been speculated that members of Sir Walter Raleigh's Lost Colony may have been among these Native American immigrants to the area (Dial and Eliades, 1975). The earliest European settlers in Robeson County found several thousand Indians already on the scene who spoke broken English and farmed as Europeans did. Some of them were blue-eyed and bore familiar English names (Sharpe, 1954). Because of a lack of recorded history and a loss of linguistic identity, however, the history of these people has been shrouded in mystery, conjecture, and myth. Their true origins will probably never be known. Having survived the encroachment of their lands, they established rural communities on the banks of the river where their descendants, known as the Lumbee, live today. They adopted their tribal name officially in 1953 from the Indian name for the river.

A number of archaeological sites are found on high ground along the river. Most of these areas have been disturbed by the agricultural and forestry practices of the post-Columbian era, however. Isolated artifacts and fossils that have been discovered include a dugout canoe estimated at over 1,025 years old, an indication that pre-Columbian peoples navigated the river for trading, fishing, hunting, and other cultural activities. The Memory brothers have related their find of 13 Indian stone artifacts in the Riverton area, which likely indicates the area was inhabited by Native Americans (Wright, 1991).

In the late 18th and the 19th centuries, the lumbering and naval stores industries were very important to the region, and the river was a vital route for transporting products of these industries. One-hundred-foot logs were rafted downriver in the late 1800's to Georgetown, South Carolina. Lumberton was an important turpentine and timber town. Unfortunately, no standing structure related to these industries has been found that could be considered of historic value. The few existing structures are from this century and are in a state of decay. Remnants of bridge abutments, tram bridges, and dock pilings in the Net Hole area are reminders of the lumbering and naval stores industries.

River Location

The Lumber River flows through south central North Carolina in the relatively flat region known as the Coastal Plain (Figure II-1). The headwaters of the river are in Montgomery, Moore, and Scotland counties, where the river is known as Drowning Creek. The name Lumber River applies to that extent of the river from its intersection with S.R. 1412/1203 along the Scotland-Hoke county line downstream to the South Carolina border.

FIGURE II-1

Lumber River State Park

RIVER LOCATION IN NORTH CAROLINA

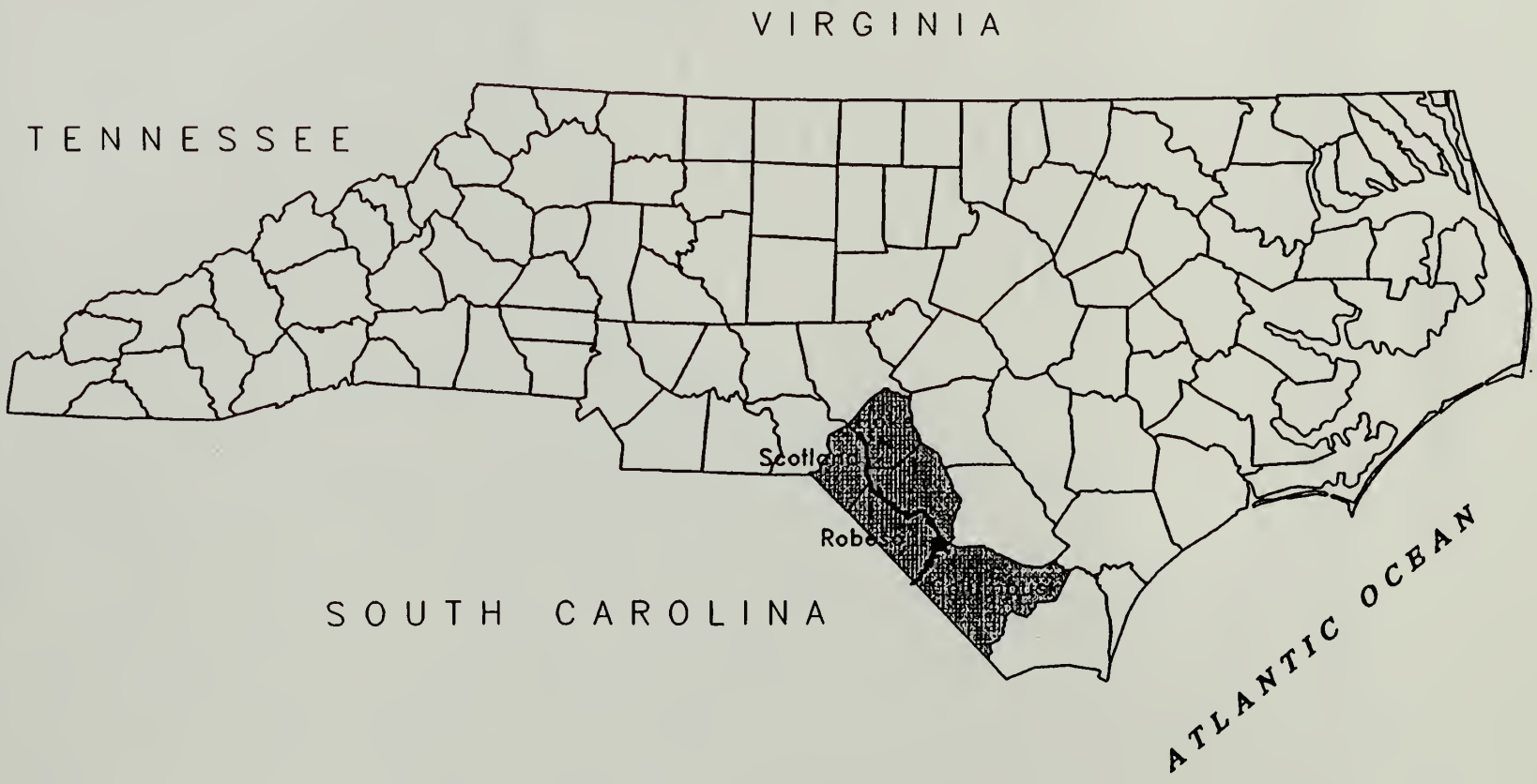

Figure II-1. Lumber River Study Area

Access

The Lumber River is accessible by interstate and other highways and by state and county roads. Of particular significance is Interstate Highway 95 (I-95), the most-travelled north-south highway in the eastern United States. This highway carries an enormous potential state park visitor population through the state in proximity to the Lumber River.

Many state roads cross, run alongside, or provide further access to gravel or dirt roads that lead to or are near the river. There are 19 intersections of roads with the river (Table II-1). Interstate Highway 95 crosses the river, dividing it into an upper and a lower section as it passes through the city of Lumberton. Highway 74 runs about 30 miles along the river in a southeasterly direction from Maxton to Pembroke and past Lumberton and then to the southeast from Lumberton to Boardman.

Population

Population characteristics are important in determining the recreational preferences of the residents of the four-county region of the Lumber River Basin. Of primary concern are population density, age, gender, ethnic background, family size, and economic status. Examination of these characteristics aids in determining the types of recreational activities that should be provided for the citizens of the region and in understanding how the population in this region fits or differs from the trends identified in the Statewide Comprehensive Outdoor Recreation Plan (SCORP).

Table II-1. Road Intersections with the River

Road	Vicinity	County
S.R. 1412/1203	Sandhills	Hoke-Scotland
U.S. 401	Wagram	Hoke-Scotland
S.R. 1310/1433	Laurinburg	Scotland-Robeson
N.C. 71	County Line	Scotland-Robeson
S.R. 1303	Maxton	Robeson
S.R. 1153/1339	Above Indian Cultural Center	Robeson
N.C. 710-711	North of Pembroke	Robeson
S.R. 1354	Below Indian Cultural Center	Robeson
S.R. 1554	South of Pembroke	Robeson
S.R. 1003	South of Pembroke	Robeson
S.R. 1550	West of Lumberton	Robeson
N.C. 72	West Lumberton	Robeson
I-95	Lumberton	Robeson
N.C. 41	Lumberton	Robeson
N.C. 72	South of Lumberton	Robeson
S.R. 2123	Burnt Island	Robeson
S.R. 2121	North of Piney Island	Robeson
N.C. 74	Boardman-Pea Ridge	Robeson-Columbus
S.R. 904	Fair Bluff	Robeson-Columbus

The populations of the four counties differ significantly. Robeson County ranks 17th of North Carolina's 100 counties in population (105,179) according to the SCORP and is therefore among the most populous counties in the state. In general, the population of the four-county region is fairly dispersed. The populations of Columbus, Scotland, and Hoke counties are 49,587, 33,754, and 22,856 respectively.

Three percent (211,376) of the state's population was living within the four counties in 1990 (Table II-2), which reflects net out-migration of 7,619 individuals (3.4 percent) from the previous year.

Table II-2. Population

County	1990	1989	1988	1987
Hoke	22,856	24,249	23,973	23,860
Scotland	33,754	34,385	34,702	34,288
Robeson	105,179	107,640	108,017	107,276
Columbus	49,587	52,720	52,562	52,784
TOTAL	**211,376**	**218,994**	**219,344**	**218,208**

The rural nature of this area is indicated by the population density, which varies from 52.9 to 110.8 people per square mile (Table II-3), well below the state's average population density of 136.1.

Table II-3: Land Area and Population Density

County	Land Area (Square Miles)	People per Square Mile
Hoke	391.2	58.4
Scotland	319.2	105.7
Robeson	948.9	110.8
Columbus	936.8	52.9
North Carolina	48,843.4	136.1

There are 55,948 households in the four-county area. Of these households, 69.5 percent are occupied by married couples, 25.1 percent with females as head of households, and 5.4 percent by individuals living alone (Table II-4).

Table II-4. Household Characteristics
(Economic and Statistics Administration, 1990)

County/ Characteristic	Total Family Households	Married Couples	Female Head of Household	Individuals Living Alone
Hoke	5,794	3,847	1,605	342
Scotland	8,971	6,225	2,338	408
Robeson	27,429	18,451	7,353	1,625
Columbus	13,754	10,381	2,757	616
TOTAL	**55,948**	**38,904**	**14,053**	**2,991**

The region is characterized by a diverse population (Table II-5). There are 99,543 Whites (47 percent), 63,420 Blacks (30 percent), 47,487 Native Americans (22 percent), 1,482 Hispanics (0.7 percent), 460 Asians (0.21 percent), and 512 of other origins (0.24 percent).

Table II-5: Population by Race (1990)

County	White	Black	Native American	Hispanic	Asian	Other
Hoke	9,635	9,878	3,176	218	85	82
Scotland	19,025	12,176	2,430	318	83	86
Robeson	37,986	26,185	40,511	704	239	258
Columbus	32,897	15,181	1,370	242	53	86
TOTAL	**99,543**	**63,420**	**47,487**	**1,482**	**460**	**512**

Females account for 52 percent of the 1990 population (Table II-6). The median age of the population in the four county area ranges from 29.6 years in Hoke County to 34.3 years in Columbus County (Robeson County, 30.3; Scotland County, 31.5). When reviewing the population by age group, the 21-44 year age group represents 35.5 percent of the population followed by those individu-

als 20 years of age or less (34.7 percent), 45-64 years of age (18.3 percent), and those greater than or equal to 65 years of age representing 11.2 percent (Economic and Statistics Administration [ESA], 1990, State Data Center Management and Information Services [SDCMIS], 1991 and Bureau of the Census, 1991).

For the purpose of determining recreational needs that might be met by the Lumber River State Park, it is worth noting that over 70 percent of the population of the four counties is under the age of 45, and that the total of non-white residents exceeds white residents. The number of Native Americans residing in the four-county region is quite large and relevant to the provision of interpretation and education opportunities at the Lumber River State Park.

Table II-6: Population by Gender (1990)

County	Male	Female
Hoke	11,448	11,408
Scotland	15,764	17,990
Robeson	49,714	55,465
Columbus	23,379	26,208
TOTAL	**100,305**	**111,071**

Employment

Income affects the kind of recreational activity in which a person chooses to engage. Higher income earners may own recreational vehicles and travel extensively for recreation. Lower income or unemployed persons tend to recreate closer to home, utilizing local recreation resources. The Lumber River is a resource appealing to both higher and lower income groups. The average annual wage per worker (1988) for this region was $15,851 (Table II-7). The entire region appears to be economically depressed when compared to the state average of $18,200.

Table II-7: Average Annual Wage Per Worker

County	1980	1988
Hoke	$10,185	$15,044
Scotland	$11,529	$16,873
Robeson	$ 9,638	$14,934
Columbus	$11,113	$16,554
North Carolina	$11,919	$18,625

The estimated family income for 1990 ranged from $24,100 in Columbus County to $30,900 in Scotland County (Table II-8).

Table II-8. Estimated Family Income

County/Year	1989	1990
Hoke	$24,500	$26,900
Scotland	$28,100	$30,900
Robeson	$22,600	$24,800
Columbus	$22,900	$24,100

The majority (37 percent) of the work force is employed in manufacturing (Table II-9), followed by the retail trade (16.3 percent); government (14.7 percent); service (12.9 percent); agriculture, forestry, and fishing (4.5 percent); construction (3.6 percent); finance, insurance, and real estate (2.4 percent); and transportation and public utilities (1.9 percent). Various non-agricultural workers made up the remaining 6.7 percent (Economic and Statistical Administration [ESA], 1989, SDCMIS, 1991).

Table II-9. Occupation of Labor Force (ESA, 1989)
(Civilian Labor Force Estimates for N.C. 1990)

Occupation	Hoke	Scotland	Robeson	Columbus	Total
Agriculture, Forestry, Fishing	220	250	1,960	1,460	3,890
Construction	170	410	1,670	840	3,090
Manufacturing	3,610	7,640	14,980	5,950	32,180
Transportation, Communication & Utilities	60	410	860	310	1,640
Trade	670	2,900	7,070	3,530	14,170
Finance, Insurance, Real Estate	8	290	1,020	720	2,110
Services & Miscellaneous	680	2,670	4,880	2,460	11,080
Government	1,460	1,810	6,610	2,850	12,730
Non-agricultural*	750	850	2,630	1,550	5,780

* Includes non-agricultural self-employed workers, unpaid family workers, domestic workers in private households.

Unemployment rates (1990) ranged from 5.8 percent to 8 percent (Table II-10). These can be compared to the North Carolina rate of 4.1 percent (Economic and Statistical Administration [ESA], 1989, SDCMIS, 1991).

Table II-10. Unemployment Rate

County/Year	1988	1989	1990
Hoke	4.7	5.0	5.8
Scotland	5.6	6.1	8.0
Robeson	7.3	6.5	6.9
Columbus	5.1	5.2	5.8
North Carolina	3.6	3.5	4.1

Regional Land Uses

The four-county region that surrounds the river is composed of forests, farms, and small townships; Lumberton is the only major city. The character of the region is mainly rural. The combined land area of these counties is 2,596 square miles. It is important to understand the work activities and the rural character of the people and their closeness to the land and its resources. These will be examined to see how they relate to the master plan recommendations, particularly where conflicts may arise out of conservation, recreation, and development issues.

Agriculture

In 1987, there were 59,284 farms in North Carolina comprising 9,447,705 acres. Of this total, 5.3 percent of the state's farms, 5 percent of the state's farmland, and 4 percent of the state's cropland were found within the combined counties of Hoke, Scotland, Robeson, and Columbus.

Primary crops grown in this region include soybeans (147,492 acres), corn (100,567 acres), wheat (29,567 acres), tobacco (23,387 acres), cotton (18,428 acres), and hay and alfalfa (6,682 acres). The market value of crops including nursery and greenhouse products totalled $112,394,000 or 7.8 percent of the state's total. Livestock and poultry products totalled $52,249,000 or 3.6 percent of the state's total (Bureau of the Census, 1987).

The recent location of the Carolina Food Processors' plant near Lumberton in Tar Heel, North Carolina is a concern. The plant's peak operating capacity is projected to be 28,000 hogs slaughtered per day. The plant's location will encourage increased hog production in the Lumber River region. Such production will require significant amounts of water and generate significant amounts of waste,

both of which may have negative impacts on the river's water quality, quantity, and flow. Such impacts can adversely change the natural functioning of the ecosystem as well as the river's recreational potential.

Forestry

About 60 percent (989,354 acres) of the total land area in the Lumber River counties of Hoke, Scotland, Robeson, and Columbus is forested. Of this, nearly 88 percent (877,300 acres) is controlled by private land owners. These private lands account for 73 percent of the total harvest. Both natural and plantation pines account for more than 50 percent of total harvest; 35 percent are hardwoods and 13 percent are Oak-Pine forests (Table 14). About 80 percent of these forests, both private and public, are considered fully or medium stocked. The volume of softwood growing stock was 803,246,000 cubic feet. More than 66 percent of this is Loblolly Pine, with the rest made up of slash, longleaf, shortleaf, Virginia, and pond pines. Net annual growth of softwood is 43,614,000 cubic feet. The volume of hardwood growing stock was 835,357,000 cubic feet, made up mainly of tupelo, blackgum, oak species, hickory, cypress, and sweetgum. Net annual growth of hardwood is 23,648,000 cubic feet. The net annual growth of hardwoods and softwoods is nullified, however, by an equivalent amount removed by harvesting and by mortality (Johnson, T. G., 1990).

Table II-11: Area in Acres by Forest Types

County	Loblolly/ Shortleaf	Longleaf/ Slash	Oak-Pine	Oak-Hickory	Oak/Gum/ Cypress
Hoke	30,099	30,262	58,403	16,028	28,141
Scotland	22,525	45,959	22,525	19,545	4,864
Robeson	76,533	3,098	40,278	35,063	125,977
Columbus	166,783	25,400	31,789	46,471	150,327

Forestry and its related industries, furniture, paper, lumber, and wood, employ 4,670 people. Lumber and wood account for the employment of 3,120 persons. Columbus County employs the largest number of people (2,700), followed by Robeson (1,400), Scotland (520), and 50 in Hoke (Civilian Labor Force Estimates for North Carolina, 1990).

Forestry activities can adversely affect the river and diminish the recreational experiences of users. Management practices that balance maintaining a quality recreational environment with timber harvesting are needed. Such practices will, at least, maintain the present growing stock and alleviate problems such as loss of scenic quality and potential siltation of the river. The Division of Parks and Recreation should request and encourage landowners to follow best management practices. Related discussions can be found in Chapter VI.

Cultural Resources

The Lumber River region is rich in culture as revealed by its historical festivals and archaeology. These elements are particularly significant when considering educational programs that might take place in the proposed park.

Festivals

Heritage festivals in the four-county region include the Lumbee Homecoming, the John Blue Cotton Festival and the Flora Macdonald Highland Games. These festivals reflect the character of the people who lived in the region of the Lumber River.

Lumbee Homecoming in Pembroke — The Lumbee Homecoming is a week-long celebration held in Pembroke during the summer. The festival brings together Lumbee Indians from the immediate vicinity as well as from other parts of the state and nation. The program of activities includes Miss Lumbee and Little Miss Lumbee pageants and a coronation ball, field trips and other activities per-

taining to Indian heritage. The event culminates on July 4 with street parades, a pow wow on the grounds of Pembroke State University and tours of the American Indian Museum there. It is accompanied by traditional pageantry, dance and other aspects of the Lumbee culture. Exhibits depicting Lumbee Indian heritage are available for viewing and for purchase.

John Blue Cotton Festival in Scotland County — The John Blue Cotton Festival is celebrated in Scotland County. It is held in the fall on the grounds of the historic John Blue House where three log cabins listed on the National Register of Historic Places have been relocated. This area is now the headquarters of the Scotland County Parks and Recreation Commission. The festival is part of the state's "Celebration North Carolina," which is intended to inspire pride and participation in community activities.

Over 100 booths display handmade crafts from local, regional and out-of-state vendors, including displays of house furnishings and furniture making, sewing, floral arrangements, handicrafts, food, and hobby collections. Some important activities at the festival include military camps and re-enactments of the Revolutionary and Civil wars, choral singing, other folk music demonstrations, games from the past, face-painting and folklore characterization. The festival also has a Mini-Ag Fair, which is a competition allowing for the display of numerous agricultural crops and horticultural plants. There are also several parades, among which the Old Timey Parade is a major attraction (*The Laurinburg Exchange*).

Flora Macdonald Highland Games — This festival, which celebrates the region's Scottish heritage, takes place during the first weekend in October. The center of the festivities are on S.R. 1701 (off Highway 71), about two miles north of Red Springs, but activities are also held in Lumberton and Moore's Creek. There are ceilidhs (parties) with dancing to bagpipe music, competitions of strength for adults, games for children, dramatic and musical performances, and formal Scottish country dancing on the grounds of Flora Macdonald Academy. The festival provides information on lineage and clan affiliation besides the opportunity to don traditional garb. In addition, the Scottish involvement in the Revolutionary War is commemorated with re-enactments of the Battle of Raft Swamp and the Battle of McPhaul's Swamp.

Flora Macdonald was a Scottish woman responsible for saving the life of Bonnie Prince Charlie (Prince Charles Edward Stuart) in 1746. She migrated to North Carolina and settled near Fayetteville with her husband in 1774. Her husband joined the Scot Loyalists in the American Revolutionary War, but was captured and returned to Scotland. She left America to rejoin her husband. In honor of this Scottish heroine, the name of the Red Springs Seminary for Girls was changed to the Flora Macdonald College in 1914. The facilities, designated a National Historic Site in 1975, are now known as the Flora Macdonald Academy, and they are used as a day school accommodating kindergarten to twelfth grade.

Some tent and R.V. camping is available at the site of the games on S.R. 1701 (The Highland Spirit, 1991).

Museums

The N.C. Indian Cultural Center is located between Maxton and Pembroke and is easily accessible off U.S. 74. The summer outdoor drama, "Strike at the Wind," is a major attraction at the Center's amphitheater. Other attractions include a golf course, recreation area and other historical features.

Another museum of Native American culture exists on the campus of Pembroke State University. Exhibits include regional, national and international aspects of Indian heritage. Cultural artifacts with appropriate interpretive information are displayed. The museum is a center for a wealth of historical and archaeological information on Native Americans from pre-Columbian times to the present.

The Indian Museum of the Carolinas in Laurinburg, Scotland County, is an archaeology/anthropology museum. It serves as an educational center with exhibits on local, regional, national and international archaeology as they relate to Indian history and culture in the Americas.

The existence of these museums, particularly the one at Pembroke State University, will help to meet an important need for cultural interpretation and education.

Climate

Climatic factors determine what kinds of activities can be pursued on a seasonal or year-round basis. The climate of the Lumber River region has been described as mild or moderate and pleasant, although occasional tornadoes and storms blow down trees and precipitation fluctuations affect water flow.

Temperature

Temperatures are mild, with warm summers and cool winters. The Lumber River four-county region has daily winter temperatures averaging between 32 and 55 degrees Fahrenheit. Average daily summer temperatures range between 68 and 89 degrees F. Both spring and autumn temperatures show a daily average low around 48 and a high around 74 degrees F. The data provided are normal temperatures for the period 1951-1980 for Laurinburg and Lumberton; similar data are used for the period 1954-1989 for Whiteville.

Precipitation

There are four recording stations in the region: Laurinburg, Red Springs, Lumberton and Whiteville. Rainfall records for the first three stations are based on the 1951-1980 period, while those for Whiteville are based on the period 1954-1989.

The data indicate that total rainfall for the area averages between 46 to slightly over 49 inches per year. There are no dry months. Rainfall is evenly distributed over the region. Lowest rainfall is in the month of April and from October to December; the wettest periods are in March and from June to August. Precipitation for all communities in the region is relatively consistent, with November receiving the least rainfall and July the highest. Rainfall in November averages between 2.63 and 2.86 inches, while July rainfall averages over five inches per year.

Average annual snowfall for the four recording stations in the region is low, ranging from between 2.06 inches for Red Springs and 2.58 inches for Lumberton. Most snowfall is evenly distributed over the region, and almost all snow falls between January and March.

Flood and Drought

Flood and drought are two significant natural phenomena that affect the flow and quality of water in the river. These, in turn, can affect certain types of river-based recreational activities. Most of the precipitation received by this region of North Carolina comes from the Gulf of Mexico or the Atlantic Ocean. Most floods are caused by rains resulting from tropical storms. Significant floods occurred on the Lumber River in 1928, 1945, and 1954. The record flood occurred in September, 1928, with a peak flow reading of about 25,000 cubic feet per second. Such an occurrence can take place on a 25-100 year cycle. Average annual flow at Boardman from 1930 to 1992 was 1,296 cubic feet per second. The drainage area covered 1,228 square miles.

Significant droughts occurred in 1930-1934, 1950-1957, 1966-1971, 1980-1982, and 1985-1988. During the drought of 1930-1934, a record minimum annual discharge of zero on the river was recorded in 1934. Such a drought is rare, but can occur on a 15-60 year cycle (U.S. Geological Survey, 1990).

Storms and Tornadoes

Storms and tornadoes are largely responsible for tree-falls along the river. Such tree-falls are part of the natural processes of the river ecosystem, but they are also a hindrance to boaters.

The four-county region of the river is relatively sheltered from hurricanes. By the time most hurricanes reach the area, they are downgraded to tropical storms (39-73 m.p.h.) or tropical depressions (less than 39 m.p.h.). Since 1750, records show 14 such storms or depressions that have had some limited impact on the area. Among these are Hurricanes Hazel in 1954, Abby in 1968, Agnes in 1972 (Neumann *et al*, 1988, and Stevenson, 1989), and Hugo in 1989.

Tornadoes are frequently recorded in the region. A comparison of the average number of tornadoes for the period 1953-1990 shows Robeson County to have the highest incidence of any county in the entire state of North Carolina, with 20 occurrences annually. Scotland and Columbus counties each have an average of seven tornadoes annually, while Hoke has five.

III. The River Corridor

Physiography and Hydrology

A broad floodplain surrounds the river. Except for some adjacent raised terraces, the topography is relatively flat, with a gradual slope from the river's source at Drowning Creek to its southern limit over 115 river miles away at the North Carolina-South Carolina border.

Elevations vary from 245 feet above mean sea level in the Sandhills, to 110 feet in Lumberton, to 55 feet at the North Carolina-South Carolina border. A sample study area of 6,245 acres, representing about 12 percent of the entire river study area, showed that all the lands studied had slopes of 5 percent or less. Many tributaries of varying volume and length drain into the river, increasing its flow and width. Notable among these are Back Swamp, due west of Lumberton, and Big Swamp, flowing from east of the Net Hole area.

Paralleling the east bank of the river downstream from U.S. 74 to the border with South Carolina is a series of sand ridges. Typically, the ridges are surrounded by poorly drained depressions, within which occurs diverse pocosin-type vegetation. The Big Sandy Ridge is an outstanding example of these sand ridges; it is secluded and relatively undisturbed. Two significant plant species exist here: chrysoma (*Chrysoma pauciflosculosa*) and threadleaf sundew (*Drosera filiformis*).

Stream evaluation data are collected at the Highway 71 bridge at Maxton and the U.S. 74 bridge at Boardman. The drainage area at Maxton is 365 square miles, and the one at Boardman is 1228 square miles. Data for the Maxton drainage area are available only for the period 1987-1991.

Data collected for the Boardman drainage area for the period from October 1990 to September 1991 show the average daily discharge to be 1167 cfs. Mean monthly flows based on data collected over the period of 1930-1991 (Table III-1) showed the flows to be lowest during the months of June-November and highest in February-March (U.S.G.S. Water Data Report NC-91-1).

Table III-1. Mean Daily Flows in Cubic Feet Per Second (CFS)

Month	Maxton (1987-1991)	Boardman (1930-1991)
January	556	1791
February	498	2179
March	614	2349
April	543	1905
May	426	1014
June	283	763
July	304	821
August	332	946
September	294	980
October	406	795
November	419	869
December	440	1293

Geology and Soils

The river cuts through four major geological formations within the Coastal Plain physiographic province (Figure III-1). The Middendorf Formation extends from the source of the river to the Scotland-Robeson County line just above Maxton. This formation originated in the Cretaceous Period, 63 million to 138 million years ago. It is characterized by sedimentary deposits of sand, sandstone, and mudstone. Clay balls and iron-cemented concretions are common. The sedimentary beds are laterally discontinuous, with cross-bedding commonly found.

FIGURE III-1

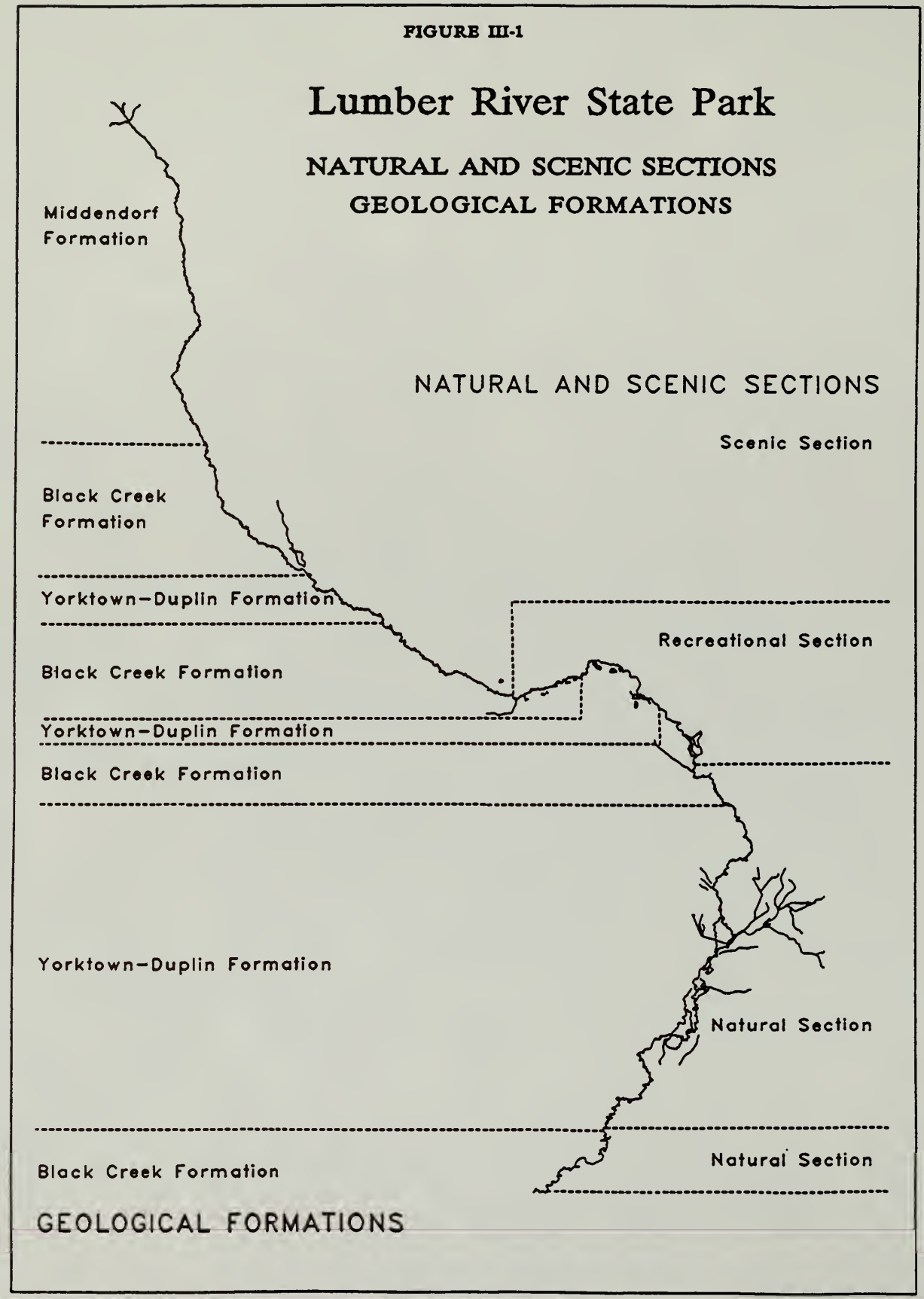

Figure III-1 - Natural/Scenic Sections/Geolog. Formations

The Black Creek Formation is found in stretches downstream from the Scotland-Robeson county line. This formation also originated in the Cretaceous Period, 63 million to 138 million years ago. It is characterized by lignitic clay, grey to black in color. It contains thin beds and laminae of fine-grained micaceous sand and thick lenses of cross-bedded sand. The upper part has lenses of glauconitic, fossiliferous clayey sand.

Originating in the younger Tertiary Period, two million to 63 million years ago, is the Yorktown-Duplin Formation. This formation extends around the cities of Pembroke and Lumberton and from the Lumber River Conservancy lands-Burnt Island area to the city of Fair Bluff. The Yorktown Formation is composed of fossiliferous clays with varying amounts of fine-grained sand, bluish-grey in color, with shell material commonly concentrated in lenses. The Duplin Formation is composed of shelly, medium- to coarse-grained sands, sandy marl and limestone, with soils that are bluish-grey in color.

The soils in the river basin are generally poorly drained. The soils of the flooded swamps are organic. In the less-wet bottomland and first terrace hardwood forests, the soils are mainly entisols without development of a soil horizon because of frequent deposits of alluvium. In the second terrace hardwood forests, the soils are somewhat poorly drained to moderately well-drained, with less alluvial deposition than the other types discussed. The main soil types are Muckalee, Meggett, Bibb and Johnston (Division of Soil and Water Conservation, Department of Environment, Health, and Natural Resources). Table III-2 identifies soil types, examples of the type of vegetation that can be found growing in those soils, and the capability of the respective soils to support recreation facilities, construction and sanitary facilities.

Table III-2. Soil Capability Characteristics

Soil Series	Recreation Facilities	Sanitary Construction	Facilities	Vegetation
Eustis	Good	Good	Moderate	Pine-Cedar
Gilead	Moderate	Moderate	Moderate	Pine
Goldsboro	Moderate	Moderate	Moderate	Pine-Oak
Kalmia	Good	Good	Moderate	Pine-Oak-Hickory
Kenansville	Good	Good	Good	Pine-Oak
Lakeland	Good	Good	Moderate	Pine
Marlboro	Good	Moderate	Moderate	Pine
Maxton	Good	Good	Good	Pine-Popular-Oak-Gum
Norfolk	Good	Good	Good	Pine-Oak-Hickory
Pactolus	Moderate	Moderate	Poor	Pine-Gum-Oak-Maple
Pocalla	Moderate	Slight	Slight	Pine
Stallings	Moderate	Moderate	Poor	Pine-Gum-Oak-Maple
Wagram	Good	Good	Good	Pine-Oak-Hickory
Wakulla	Poor	Good	Poor	Pine-Oak
Wagram	Good	Good	Moderate	Pine-Oak

Flora

The Lumber River floodplain is largely a second-growth oak-cypress-gum swamp forest of the blackwater sub-type. Most of the species present are indicators of the perennially wet nature of the river floodplain. The major canopy species are cypress, tupelo, red gum, black gum and water oak; the understory is dominated by river birch, water elm, red maple and hackberry. Along the river banks are abundant pines, cypress, poplar, bays, juniper, gums and wisteria. Equally abundant are poison ivy, poison oak and poison sumac. Virginia creeper and spanish moss are common on trees bordering the river. Fern species and the insectivorous venus flytrap grow along the stream banks.

The swamp forests grade to bottomland forests and then to first terrace hardwood forests, which are found on slightly higher elevations. Flooding in these forests is seasonal and occurs typically in

FIGURE III-2

Figure III-2 - Natural Heritage Priority Areas

winter or early spring. Common trees in these bottomland and first terrace hardwood forests are water hickory, overcup oak, laurel oak, willow oak, red maple, persimmon, cottonwood, green ash, American elm, loblolly pine and river birch. Common shrubs found are black willow, buttonbush, winterberry, hazel alder, swamp privet and American holly. Lizard's tail and sedges are also prevalent.

The next broad forest type is the second terrace hardwood forests. Although found in the floodplains of the river, flooding is temporary. Common trees are green ash, American elm, red maple, sweet gum, water oak, cherrybark oak, swamp chestnut oak, shagbark hickory, ironwood, sycamore, yellow poplar and loblolly pine. In the understory are spicebush, sugarberry, poison ivy, jack-in-the-pulpit, Virginia creeper, hawthorns, American holly, greenbrier, mayapple, sedges, and blackberry (Division of Forestry, Department of Natural Resources and Community Development, 1990).

Fallen trees are a part of the natural processes along the river. They are an important substrate for many kinds of unicellular and higher plants that may serve as food for both aquatic, aerial and land creatures. They are also a significant part of the biological diversity of the river.

The many low ridges in the floodplain are dominated by loblolly pine and mixed hardwoods. Typically, the ridges are surrounded by poorly drained depressions within which occurs diverse pocosin-type vegetation. Paralleling the east bank of the river between U.S. 74 to the border with South Carolina are a series of these sand ridges. The 700-acre Big Sandy Ridge located north of Fair Bluff is an outstanding example of these sand ridges. The area is secluded and composed of relatively undisturbed Pine-Scrub Oak Sandhill community. Two significant species exist here: chrysoma (*Chrysoma pauciflosculosa*) and threadleaf sundew (*Drosera filiformis*).

A preliminary natural heritage inventory of the river corridor was conducted in 1989 (Ash, 1990). Twelve Natural Heritage Priority Areas were identified (Figure III-2). These contain high quality natural communities or habitat for rare species. There are six natural community types (Schafale and Weakley, 1990) represented in these 12 areas: Sand and Mud Bar, Coastal Plain Levee Forest (Blackwater subtype), Cypress-Gum Swamp (Blackwater subtype), Coastal Plain Bottomland Hardwoods (Blackwater subtype), Pine Savannah and Xeric Sandhill Scrub. Sixty percent or more of these areas are represented by Coastal Plain Bottomland Hardwoods, 20 percent by Cypress-Gum Swamp and 15 percent by Coastal Plain Levee Forest.

Rare and sensitive plants exist throughout the river corridor, particularly in these unique Natural Heritage Priority Areas. Among the rare and endangered plants is sarvis holly (*Ilex amelanchier*), a unique blackwater river plant that grows mainly along the river banks and is distributed along the river's entire length. This plant is on the State Endangered Species List and is a candidate for the Federal List of Endangered or Threatened Plants. Comfortroot (*Hibiscus aculeatus*) is another endangered plant found mainly below the CP&L cooling lake. Rare plant species known to occur in the river corridor are listed in Table IV-1.

Fauna

Detritus from plants and animals found in the river form the basic link in the food chain with detritus feeders. Microscopic organisms and macroinvertebrates have been sampled on the river. A fairly complex feeding web is formed that involves other animals. Within the adjoining forests are a variety of vertebrate wildlife (mammals, birds, reptiles, amphibians and fish) as well as many invertebrates. Common species include deer, raccoon, muskrat, beaver, otter, mink, wild turkey, wood ducks, hawks, pileated and other woodpeckers, robins, the prothonotary warbler, snakes, alligator, toads, frogs, minnows, catfish, bass, robin redbreasts, jack, and bluegill bream. Invertebrates, such as butterflies and damselflies, abound on the river.

There are several notable rare and endangered animal species within the river system. The American alligator (*Alligator mississippiensis*) is foremost among these. Its range is along the entire river floodplain, but its numbers are few; it needs to be studied further. A unique fish, the cape fear chub (*Cyprinella zamema*), hitherto unknown in the Lumber River, has been identified in both its upper and lower reaches. Rare invertebrates can also be found, including lepidopterans, among which is the giant yucca skipper (*Megathymus yuccae*), whose larvae relish the Yucca plant. The endangered red-cockaded woodpecker (*Picoides borealis*) is found in the uppermost reaches of the river. The pine

barrens treefrog (*Hyla andersonii*) and the river frog (*Rana heckscheri*), two rare amphibian species, have been identified in the uppermost portions of the river.

An early account by Haynes (1915) indicated the presence of numbers of nesting colonies of blue heron and buzzard, both protected species at that time, as well as bear, wild hogs, mallards, and kingfishers.

Archaeology

Most of the archaeological work in the Lumber River region has been done in Robeson County and is thought to be representative of the general archaeology of the area.

Four hundred and twenty-nine archaeological sites have been recorded in Robeson County. Of these, 115 sites were studied over a 100-year period preceding 1988. Recent research has been done on 314 new areas. Research was based on topographic variables, such as elevation and proximity to a water source, as well as from information provided by local residents acquainted with areas in which artifacts have been found. Each site was classified under one of four categories: Paleo-Indian, Archaic Woodland, Mississippian and Historic. There are 47 sites with potential archaeological importance, 20 of which have been nominated to the National Register of Historic Places (Knick, 1988).

The Paleo-Indian Period, dating possibly to 20,000 B.C., is characterized by nomadism, hunting and food-gathering. The most distinctive tools had lanceolate projectile points.

The Archaic Period, from about 8,000 B.C., saw a slight climatic warming and a consequent increase in human population and deciduous trees. It was characterized by a reliance on smaller animal species and the collection of flora as well as fishing and shell-fishing. An inventory of tools found from this period shows adaptation to the forest environment. Among the implements found are stemmed and notched projectile points, atlatl (spear-throwing) weights, knives, axes, scrapers, choppers, drills, and grinding and nutting stones.

The Woodland period began between 2,000 B.C. and 1,000 B.C. and continued into the time of European settlement. It is characterized by the further development of subsistence agriculture and ceramics, although hunting and gathering continued. In the early part of this period, the bow and arrow came into being with small projectile points — the true arrowheads. These Native Americans abandoned the nomadic lifestyle for village life.

The Mississippian Period began in 900 A.D. and co-existed with cultures of the former three periods as well as with the next, the Historic Period. It was a period characterized by subsistence agriculture in areas near sizeable villages; corn was the major crop. Native Americans constructed flat-topped earthen mounds as part of their ceremonial activities. Projectile points were small and triangular or pentagonal. Ceramics bore decorations of stamps of rectilinear or curvilinear forms, or they were highly polished.

The Historic Period began with the arrival of European explorers, the earliest of which were Italian, Spanish and Portuguese. The period of written history of Native Americans began with the English colonists on Roanoke Island in 1585. A number of different Native American groups speaking different languages (Siouan, Iroquoian, Algonkian and Muskogean) were in the area. It was from these indigenous groups that the present Native American population has descended. Artifacts of interest from this period include kaolin and other pipes (items of European influence) for tobacco smoking, gunflints, and ceramics of plain whiteware, pearlware and creamware, together with the traditional types. Also found were colored salt-glazed stoneware and various types of porcelain. Dark green bottle fragments from the 19th century are included in these artifacts found along the Lumber River (Knick, 1988).

Regional Recreation

There are a number of sites devoted to outdoor recreation. Most of these, however, are designated for hunting and occur on the Sandhills Game Lands, which occupy 18,191 acres in Scotland County.

Located within the four-county region are 22,114 acres of state and 1,133 acres of municipal and

county land for outdoor recreation. Currently, there are no federally owned lands for outdoor recreation in the four counties (SDCMIS, 1991). Table III-3 lists outdoor recreation land areas by county.

Recreation in the areas adjoining the river varies from active outdoor recreation, to festivals, to passive activities. Among the most popular activities are nature study, camping, canoeing and boating, swimming, picnicking, fishing, hunting, crafts, and fossil collecting.

Table III-3. Outdoor Recreation Land Area (1989)
(State Data Center Management and Information Services, 1991)

County	State*	Federal**	Local***
Hoke	0	0	15
Scotland	18,191	0	425
Robeson	1,408	0	662
Columbus	2,515	0	30
TOTAL ACRES:	22,144	0	1,133

*State Parks, Historic Sites, Wildlife Gamelands
** National Parks, Forests, Wildlife Refuges
*** Local Park and Recreation Sites

Experiencing the Lumber River

The aesthetic appeal of the Lumber River is one of its most important values. Evergreen trees and shrubs adorn the surrounding forests perennially, while deciduous species accentuate the beauty of the forests as they change seasonally from open patches of bare trees to masses of flowering vegetation in the spring and brilliant foliage in the autumn. Along the river, Spanish moss and mistletoe can be found growing in trees while the banks of the river are covered with ferns and other herbaceous plants. The region is rich in the variety of invertebrate and other wildlife.

The best way to experience the unique characteristics of the Lumber River is by canoe. The visitor experiences miles of natural settings that one would normally expect in highly isolated areas. One such outstanding stretch is from the 5th Street river crossing below Lumberton to the U.S. 74 intersection.

Canoeing/Boating

"Half a dozen strokes of the paddle and we were around a bend, out of sight ... and apparently miles from civilization," said William Haynes, summarizing the wilderness character of the Lumber River in 1915, even as it passed through city limits.

Along the entire length of the river, fishing, canoeing and boating have traditionally been and continue to be the most important recreational pastimes. The meandering nature of the river and the force of unseen currents provide challenging variations in navigability to recreationists. Trips can vary from one hour along some river sections to several days navigating the entire river.

The popularity of canoeing is reflected by the number of canoe rental operators in the Wagram, Burnt Island and Fair Bluff areas as well as at Pembroke and Lumberton, the Robeson County Recreation Department among them. In addition, canoeing enthusiasts who live along the river have organized clubs such as the Upper Lumber River Association and the Lumber River Canoe Club.

The river has been divided into recreation trails and has 24 canoe access points at road intersections. The uppermost segment between U.S. 15-501 and S.R. 1412/1203, however, is Drowning Creek and is not a part of the official natural and scenic designation of the Lumber River (Table III-4). Most of the river is classified as "A," which is smooth water with a velocity of less than two miles per hour; the remainder is classified as "B," which has flows of between two to four miles per hour (Benner and McCloud, 1987). The most floated is the Lower Lumber River Recreational Trail, a part of the N.C. Trails System, which has 17 segments; it is the most popular with canoeists (Lumber River Canoe Club). Intensive canoeing activity can take place within the eight-mile stretch of river through Lumberton in Robeson County ranging from N.C. 72 at McNeill's bridge to its intersection

with N.C. 72 at High Hill. This section of the river is designated as *recreational*. It is not subject to significant environmental degradation by boaters, and it has good accessibility. Canoe regattas have taken place here.

In Scotland County the Lumber River Canoe Regatta took place between 1976 and 1986 on the Lumber River Canoe Trail along a segment of the river that is the highest-ranked (ninth overall) scenic segment of the river upstream from Lumberton. This annual event was discontinued because fallen trees had made that section of the river impassable. The regatta was a popular event, and local officials are interested in reviving it now that the obstructions have been removed. The Lumber River Canoe Trail is the designation of the upper Lumber River between the intersection of U.S. 15-501 with the river and N.C. 71 and the river. This upper portion of the river has five segments. The Lumber River Canoe Trail was made a part of the N.C. Trails System in 1978. It was the first official canoe trail in North Carolina. In 1981, the National Trails System dedicated the Lumber River Canoe Trail as the first water trail in the southeastern United States.

The upper sections of the river require greater canoeing skill because of fallen trees, narrow stream width, and somewhat swifter water than in lower sections. An aerial inspection in March 1992, visits to access points, and subsequent canoe trips revealed serious impediments to the free flow of the river on the section from S.R. 1412 (Turnpike Bridge) to U.S. 401. From the U.S. 401 intersection to the border with South Carolina, the river has few obstructions. The Wildlife Resources Commission maintains a small boat passageway along the entire river by cutting up to a six-foot-wide passageway where downed trees cross the river.

Table III-4 gives some estimates of float time. These times may vary, based on the skill of the user, the amount of obstruction on the river, and the level, quantity and flow of water.

Table III-4. River Recreation Trail Segments
(From Benner and McCloud, 1987)

Segment	Beginning	Ending	Miles+	Hours	Difficulty
1#	U.S. 15-501	S.R. 1412	9.4	4.5	B
2	S.R. 1412	U.S. 401	7.8	4	A - B
3	U.S. 401	S.R. 1404	2.4	1	A #
4	S.R. 1404	S.R. 1310/1433	7.4	3	A - B
5	S.R. 1310/1433	N.C. 71	5.5	3	A
6	N.C. 71	S.R. 1303	3.2	2	A
7	S.R. 1303	S.R. 1153/1339	3.0	2	A
8	S.R. 1153/1339	S.R. 1354	6.4	4.5	A
9	S.R. 1354	N.C. 710-711	3.0	2.5	A
10	N.C. 710-711	S.R. 1554	5.1	3	A
11	S.R. 1554	S.R. 1003	3.0	2.5	A
12	S.R. 1003	S.R. 1550	5.5	3.5	A
13	S.R. 1550	N.C. 72	8.9	5	A
14	N.C. 72	McMillan's Beach	2.6	2	A
15	McMillan's Beach	Stephens Park	1.4	1	A
16	Stephens Park	Noir Street Playground	1.9	1	A
17	Noir Street Playground	N.C. 72	2.3	1	A
18	N.C. 72	S.R. 2123	9.5	5	A
19	N.C. 2123	S.R. 2121	3.9	2	A
20	S.R. 2121	U.S. 74	8.1	6	A
21	Boardman/US 74	Red Barn/S.R. 1504	7.2	3	A
22	Red Barn/S.R. 1504	Princess Ann	2.2	1	A
23	Princess Ann	N.C. 904	11.7	7	A
24	N.C. 904	N.C./S.C. Border	3.9	Not Classified	Not Classified

\+ Mileage corrected from GIS data # Drowning Creek Segment

Picnicking and Camping

A number of points along the river, accessible by canoe or road, are ideal for family and group picnicking and camping. The towns of Maxton, Pembroke, Lumberton and Fair Bluff offer opportunities for picnicking and providing playgrounds for children. In Lumberton, recreational opportunities are afforded at Luther J. Britt Park and James Stephens Park, which are categorized as Open Space Areas; Turner Gore Park, Bicentennial Park and Noir Street Playground are categorized as Neighborhood-Serving Areas (Gardner Gidley and Associates, 1991). In addition to these public recreation areas, a number of private recreational sites exist along the river.

Hiking, Jogging and Bicycling

Hiking and walking along the river are popular recreational pursuits for residents in the Lumberton area. Jogging and bicycling are activities associated with these hiking trails. McMillan Beach has the potential to be incorporated into the open space trail system of the city.

Fishing

Bank, small boat and canoe fishing occur all along the river. Sandbars and fallen logs provide suitable habitat for fish and various river biota on which the fish feed. Common species fished are catfish, bass, jack and bluegill bream.

Hunting

Hunting for survival and for sport has always been an important activity in the region. All along the river there are opportunities for hunting deer, squirrel, and other game. The Wildlife Resources Commission manages three boating access areas along the river:

- North of Wagram where U.S. 401 crosses the river in Hoke County;
- McNeill's Bridge, west of Lumberton and the intersection of N.C. 72 and I-95, off S.R. 1589 beside the river in Robeson County; and
- High Hill, south of Lumberton, where N.C. 72 crosses the river in Robeson County.

In addition, the Sandhills Game Lands are located in the upper watershed of the river. An 18,191-acre portion is found in Scotland county, composed of a number of tracts of land. One tract occupying about 580 acres is located in the upper region of the river around its intersection with S.R. 1412. Hunting also takes place at the 231-acre Bullard and Branch Hunting Preserve in Robeson County.

State park regulations do not permit hunting on state park property. Hunting may be permissible on lands along the river that are not acquired as state park lands. Hunting on these non-state park lands is subject to normal regulations by the Wildlife Resources Commission and the control of private landowners.

Fossil Collecting

Fossils are remains or impressions of hard parts of fauna and flora of the distant past that became buried in mud or sand-deposited in rivers, lakes, and oceans. The study of fossils is known as paleontology and is to be distinguished from archaeology, which is the study of artifacts such as arrowheads and pottery. Many amateur and professional paleontologists enjoy collecting fossils in North Carolina, particularly in the eastern part of the state, which is rich in fossil locations. A diverse number of species of fossilized fauna and flora ranging from a few thousand to millions of years old can be collected from the state's river banks and exposed geologic areas.

One particular area on the banks of the Lumber River near Lumberton has been singled out because of ease of access, abundance and diversity of fossils, and historical and geological significance. It is on the east bank of the river about 0.25 mile upriver from the N.C. 72 intersection with the river. The location has a basal oyster-rich bed, a middle bed with abundant and diverse open marine mollusks and a few estuarine mollusks, and an upper bed with mostly fragmented shells (Carter, Gallagher, Valone and Rossbach, 1988). Such fossil areas are important for resource interpretation

and education. It should be noted that fossil collecting is not permitted on state park property under state park regulations.

Swimming

Swimming takes place at many areas along the river, particularly by local residents who are familiar with the river. The black appearance of the water and the swamp environment render the river somewhat dangerous to the novice swimmer, however. In addition, swirling under-currents and under-water snags can make swimming unsafe.

IV. Site and Resource Analysis

The physical and natural characteristics of a site become the critical elements in determining whether the proposed development of recreational areas and facilities will also allow for the protection of significant natural and cultural resources. Alternative strategies for development have to be examined. Site analysis, therefore, must assume an ecosystem approach that takes into consideration factors such as soils, vegetation, slope, and access. Resource analysis identified the highest priority sites along the river corridor based on biological, geological, recreational, archaeological and scenic criteria. Twelve Natural Heritage Priority Areas and six sites of geologic significance have been identified along the Lumber River. The river also has outstanding scenic qualities; it was divided into 32 scenic segments and rated for scenic quality.

Natural Resource and Cultural Considerations

Recreational potential was one important criteria in identifying areas that might be incorporated in the proposed state park. Equally important considerations included the identification of areas containing unique examples of geologic, archaeologic, biologic and scenic significance.

Geologic and Paleontologic

Three outcrops of geological or paleontological importance are located along the Lumber River in Robeson County. The first outcrop, at river mile (R.M.) 25.9, probably of Tertiary age, occurs on the river's left bank just downstream of Red Banks. It is a five-foot outcrop of light grey sandy clay overlain by 10 feet of yellowish-brown to grey arkosic sand. It is of more geological than paleontological interest since it is non-fossiliferous.

The second outcrop (R.M. 69.1) is about one-quarter mile upriver from the North Carolina Wildlife Commission boat access at N.C. Highway 72 known as High Hill. It is located 50 yards down the dirt road leading from the access area. This area contains mollusk fossils belonging to the Pliocene Duplin fauna of the Yorktown Formation. They are found in about 15 feet of bluish-grey to yellow and reddish-brown shelly quartz sand. The basal portion is of oysters; the middle bed is of open marine mollusks and a few estuarine marine mollusks, and the upper bed is mostly of fragmented shells. At water level is a sandy limestone ledge formed by a concentration of fossilized oyster, *Ostrea sculpturata.*

The third outcrop is a 5-foot outcrop of the Black Creek Formation located on the left bank of the river (R.M. 112.0) across from the boat ramp at Fair Bluff. It consists of a dark grey micaceous clay and sandy clay with abundant lignite. Sulphur blooms occur on bedding surfaces, and some mollusk fossils are found here (Carter *et al*, 1988 and Division of Parks and Recreation, Department of Natural Resources and Community Development, 1989).

In addition to these three geological outcrops are rare bluffs of geo-morphological interest. Particularly outstanding among these are those at Chalk Banks in the north and Princess Ann and Matthew Bluff in the south. These outcrops and bluffs are areas that add to the richness and variety of natural features occurring in the river floodplain. They will be particularly important in interpretation and protection programs.

Archaeologic

Not enough archaeologic research has been done in areas close to the river to determine whether archaeologic sites even exist. Such sites would be an important addition to an archaeological, historical and cultural resources interpretive program. These sites would also have to be managed as part of the park's resource protection program. The necessary additions of such sites, if found, will have to be made to the master plan map database. The master plan will also reflect adjustments to staff and funding requirements.

Biologic

The State Parks Act is the most important legal mandate for preserving areas of biological importance. The Statewide Comprehensive Outdoor Recreation Plan (1990-1995) recognizes the need to identify, acquire, conserve and protect important natural resources and open spaces. Further, the Nature Preserves Act of 1985 recognized and enunciated the need to preserve areas of natural significance. The latter act describes these areas as irreplaceable laboratories of scientific research, reservoirs of unexplored nature and its uses, living museums of nature and natural processes. Each of the two surveys conducted by NCSU and the Lumber River State Park and State River Citizens Advisory Committee, described earlier, reinforced the need for conservation. The conservation of the Lumber River's biological diversity is necessary if its unique ecosystem is to continue the course of nature and its natural functions.

Twelve areas within a total of approximately 6,207 acres have been identified as Natural Heritage Priority Areas (Figure III-2). These have been ranked according to their importance as Natural Heritage Priority Areas containing rare and endangered plants and are presented in Table IV-1. All are worthy of some level of protection. Harper's Ferry Church Sand Ridge has become a major housing development and is almost impossible to protect. The other 11 areas on 6,151 acres will either be acquired on a phased basis or efforts undertaken to protect them through other means.

Table IV-1. Natural Heritage Priority Areas

Ranking	Name	Acreage	Justification
1	Mill Branch Sand Ridge	66	Large, healthy population of *Chrysoma pauciflosculosa*
2	Net Hole Swamp	837	Extensive floodplain habitat
3	Spring Branch Church Swamp	616	Extensive floodplain habitat with *Ilex amelanchier*
4	Princess Ann Swamp	680	Extensive floodplain habitat
5	Maxton Airport Swamp	382	Extensive floodplain habitat with *Ilex amelanchier*
6	Mill Branch Church Swamp	13	Orchid-Insectivorous Plant Savannah
7	Fair Bluff Swamp	1,178	Extensive floodplain habitat
8	Big Sandy Ridge	376	Population of *Chrysoma pauciflosculosa*
9	Harper's Ferry Church Sand Ridge	56	Population of *Chrysoma pauciflosculosa*
10	Bluff Swamp	1,268	Extensive floodplain habitat
11	Lower Buck Landing Swamp	531	Extensive floodplain habitat with population of *Macbridea caroliniana*
12	Piney Island Swamp	204	Extensive floodplain habitat with population of *Macbridea caroliniana*

Scenic

The river is classified as *scenic* from its source to the confluence with Back Swamp, a distance of approximately 57 miles. It is classified as *natural* from its confluence with Jacob Branch to the northern city limits of Fair Bluff, a distance of approximately 37 miles, and from the southern city limits of Fair Bluff to the North Carolina/South Carolina state line, a distance of approximately two miles. The river has two sections classified as *recreational*. These are between Back Swamp and Jacob Branch (including the Lumberton area), which is approximately 17 miles, and within the limits of the city of Fair Bluff, which is approximately three miles (Figure III-1). In those *natural* and *scenic* sections, the river meets, or has the potential to meet, all five criteria for such designation as outlined in the Natural and Scenic Rivers Act. These criteria are: length, visual horizon shoreline distance, water quality, water flow, and limited public access.

The Lumber River State Park and State River Citizens Advisory Committee studied the river and rated it for its scenic value. The study divided the river into 32 segments of varying lengths, from 0.08 mile to 7.85 miles. The river segments are identified along with their upstream-downstream points, mileage, and rating (Table IV-2). Each of these segments has been placed in one of the three designation categories of *natural, scenic* or *recreational.* The ratings are important in identifying areas for quality recreational experiences and for interpretive opportunities. More important, they are a criterion in the site selection process to ensure facilities are located where visitors have the benefit of the river's scenic values.

The ratings were an important criterion in site selection of park headquarters, both in the northern and southern sections of the river. The north park headquarters at Chalk Banks is located on the segment rated highest north of Lumberton and ninth overall. The southern park headquarters area is located near the top-rated scenic segments.

Table IV-2. Scenic Resource Rating

Segment	Beginning Point	Downstream Point	Mileage	Rating	Category
1	S.R. 1412 Bridge	U.S. 401 Bridge	7.8	9	Scenic
2	U.S. 401 Bridge	Riverton Park	2.4	12	Scenic
3	Riverton Park	S.R. 1433 Bridge	7.4	13	Scenic
4	S.R. 1433 Bridge	N.C. 71 Bridge	5.5	26	Scenic
5	N.C. 71 Bridge	S.R. 1301 Bridge	3.2	28	Scenic
6	S.R. 1301 Bridge	S.R. 1153 Bridge	3.0	29	Scenic
7	S.R. 1153 Bridge	Seaboard Rail Bridge	0.9	25	Scenic
8	Seaboard Rail Bridge	S.R. 1354 Bridge	5.5	24	Scenic
9	S.R. 1354 Bridge	N.C. 710-711	3.0	23	Scenic
10	N.C. 710-711	S.R. 1554 Bridge	5.1	22	Scenic
11	S.R. 1554 Bridge	S.R. 1003 Bridge	3.0	20	Scenic
12	S.R. 1003 Bridge	S.R. 1550 Bridge	5.5	14	Scenic
13	S.R. 1550 Bridge	Back Swamp Confluence	3.7	19	Scenic
14	Back Swamp Confluence	N.C. 72 Bridge	5.2	15	Recreat'l
15	N.C. 72 Bridge	I-95 Bridge	2.9	17	Recreat'l
16	I-95 Bridge	5th Street Bridge	1.8	30	Recreat'l
17	5th Street Bridge	S.R. 2289 Bridge	1.0	31	Recreat'l
18	S.R. 2289 Bridge	S.R. 72 Bridge	2.5	32	Recreat'l
19	S.R. 72 Bridge	Jacob Branch Confluence	3.6	21	Recreat'l
20	Jacob Branch Confluence	N.C. 2123 Bridge	5.9	8	Natural
21	N.C. 2123 Bridge	N.C. 2121 Bridge	3.9	4	Natural
22	N.C. 2121 Bridge	Piney Island Landing	4.6	2	Natural
23	Piney Island Landing	Boardman/Net Hole Area	3.5	1	Natural
24	Boardman/Net Hold Area	Lower Pea Ridge	1.6	16	Natural
25	Lower Pea Ridge	Williamson Canal	4.0	6	Natural
26	Williamson Canal	Red Barn	1.6	18	Natural
27	Red Barn	Griffin Whirl	2.1	10	Natural
28	Griffin Whirl	Princess Ann	0.1	11	Natural
29	Princess Ann	Sunday's Landing	6.3	5	Natural
30	Sunday's Landing	Upper Fair Bluff	4.0	3	Natural
31	Upper Fair Bluff	Lower Fair Bluff	3.1	27	Recreat'l
32	Lower Fair Bluff	NC/SC State Line	2.2	7	Natural

Recreation Site Development Criteria

The length of the designated river, 115 miles, posed a unique problem in the analysis of site factors important for recreational development. It was necessary to determine which site selection and recreation development criteria should be used, and how thorough an examination of these site factors could be done in the planning process. The solution to these problems was to consider the traditional approaches to such planning and relate them to new computer applications in mapping, analysis and site selection. The mapping activities required for this analysis would have been too time consuming by traditional methods. To overcome these mapping and analysis problems, the applications of Geographic Information Systems (GIS) technology, a computer-based system, proved efficient and effective. GIS allowed for map creation and site selection through the use of its overlay, reclass, and neighborhood functions. These functions and capabilities were especially helpful when a number of layers with large amounts of information were created and used in the planning process.

Three major criteria were used to indicate potential sites for recreation development: lands above flood level, road access, and river proximity. Digital data bases or computerized maps displaying this information were created from existing analog maps. These analog sources were 12 U.S.G.S. quadsheets for mapping the roads, contours (for transformation to slope classes) and river layers, 12 orthoquadsheets, over 50 soil survey sheets for four counties, three national wetlands inventory maps, aerial photographs, and other relevant cadastral sheets.

Lands Above Flood Level

Lands above flood level were identified through a geo-hydraulic analysis of the Lumber River floodplain. Within this floodplain, it became more critical to find dry land than to determine slopes. In fact, the GIS analysis revealed that there were almost no slopes greater than 5 percent. This 5 percent slope or less is desirable for recreational development and offers no restrictions for construction.

Land above the flood level (LAFL) was therefore used as an alternative to the three traditional planning criteria of slopes, soils and vegetation. An area varying from one to 2.5 miles on either side of the river was examined and mapped to determine which areas were not under water either seasonally or perennially. The area examined included approximately 150,000 acres.

LAFL was identified using two sources of information. One source was the soil surveys for Hoke, Scotland and Robeson counties. Soils selected were recommended by these surveys as suitable for recreation development, for sanitary facilities and for construction sites. Among these were soils from the Goldsboro, Kalmia, Lakeland, Marlboro, Norfolk, Pactolus, Pocalla, Wagram and Wakulla series (Table III-2). This layer was named SOILS.

Other information on LAFL was obtained from three wetlands inventory maps of the lower half of the river. These corresponded to the U.S.G.S. quadsheets for S.E. Lumberton, Evergreen and Fair Bluff. Non-flooded areas were indicated by the presence of conifers and hardwoods. Coniferous species indicative of relatively dry areas were longleaf pine, shortleaf pine, Virginia pine, and eastern red cedar. Representative hardwood species were hickory, blackjack oak, turkey oak, southern red oak, white oak and beech. The associations fell into the Palustrine System of the wetlands classification. The Palustrine System consists of non-tidal wetlands with insignificant salinity. It is dominated by trees, shrubs, persistent emergents, emergent mosses and lichens; it groups together vegetated wetlands known commonly as marsh, swamp, bog, fen or prairie (Cowardin *et al*, 1979). Vegetation types commonly found in dry environs were selected and their locations identified. Such areas are normally capable of supporting recreational development. This layer was named VEGETATION.

Access

The second criterion for determining potential development sites was access from existing roads. This access layer, named ROADS, was created by digitizing about 500 miles of existing highways, state and other roads from 12 U.S.G.S. quadsheets. This layer was used to display the proximity of roads to high ground, indicated by the layer showing lands above the flood level.

River Proximity

The third criterion for identifying potential recreation sites was proximity to the river. A layer named RIVER was created by digitizing about 115 miles of river and 85 miles of tributaries from the 12 U.S.G.S. quadsheets. This layer was used to generate a corridor one-half mile wide on either side of the river. Lands above the flood level within this corridor may have the potential for some type of recreational development.

Site Selection for Recreational Development

Recreational development includes such things as buildings, facilities, access roads and trails. The four layers (SOILS, VEGETATION, ROADS and RIVER) created from the four criteria were manipulated in a series of GIS applications to locate all ground suitable for such recreational purposes.

The criteria for potential sites were:

- lands must be above the flood level;
- lands must abut or be no further than 100 yards from the river;
- roads must abut or cross these land areas.

Since non-swamp areas are rare, all lands meeting recreational development requirements were considered regardless of their acreage. The first and second restrictions were handled by the process leading to the creation of the HIGH-GROUND layer. This layer showed 49,866 acres of high ground within the one-mile corridor. The last restriction was met by selecting lands that abutted or were crossed by a road. Where roads, lands and river were in close proximity, these were suitable for vehicular entry and exit.

Another category of sites by river access only was created. Such lands consisted of high ground not within the vicinity of a road, but abutting the river. These were suitable as canoe rest stops or overnight canoe camping areas for multi-day trips.

Site Selection for Park Headquarters

The final identification procedure focused on the location of sites suitable for park headquarters. Dry sites within the one-mile corridor that contained road access were determined. The GIS identified all candidate sites that either abut or are crossed by a road. Other analysis criteria used to narrow the number of sites in the site selection process were proximity to Natural Heritage Priority Areas; scenic river rating; archaeological importance; and relatively central locations for park headquarters development in the north and south sections.

North:

- Chalk Banks
- Between S.R. 1407 and S.R. 1308 (Maxton Airport/Breeden Area)
- On S.R. 1308 (off N.C. 71)
- On S.R. 1360 (off N.C. 71)
- On S.R. 1461 (off N.C. 71)
- On S.R. 1376 (off N.C. 71)
- On S.R. 1303 (off N.C. 71)

South:

- Buck Landing
- Matthew Bluff
- Piney Island
- Pea Ridge
- Princess Ann

After a number of field visits, the final sites proposed for park headquarters were chosen at Chalk Banks in the north and Pea Ridge in the south. These are discussed in Chapter V.

State Recreation Lands

Included among selected lands are portions of three areas that are either owned by the state and managed by the Division of Parks and Recreation or are in the process of being acquired by the state. Almost all these were classified as swamps or liable to flooding, and little non-swamp areas existed except at Princess Ann and Piney Island, two areas identified as possible headquarters areas. These three areas of unique natural features are:

- Piney Island: 537 acres
- Princess Ann: 100 acres
- Net Hole and part of the Lower Buck Landing Swamp: 1,570 acres

A fourth area of about 190 acres has potential for addition to the state park system. It is owned by the Lumber River Conservancy and located between the CP&L Weatherspoon Plant and U.S. 74/ Boardman (Figure V-11).

V. Master Plan

The Lumber River State Park will protect segments of the river corridor where the highest biologic, scenic, geologic, archaeologic and recreation resources values are concentrated. Two major management areas, northern and southern, will be established for this purpose. Recreational use of the river will emphasize opportunities for multi-day trips on a primitive blackwater river as well as typical state park activities such as camping, picnicking, and hiking. Interpretive programming should focus on the Lumber River as a blackwater river, the significance of the identified Natural Heritage Priority Areas, Native American culture, and regional history.

Protection Priorities

The Lumber River State Park designation legislation stipulates that *"... the master plan shall recognize and provide for State and local government protection of the various parts of the river so as to preserve its outstanding character in perpetuity."* Thus, a main objective of this master plan is to identify the river segments where state government action is most appropriate. State ownership and management of the entire corridor is neither practical nor feasible because of such factors as the length of the corridor, fiscal resources, conflicting land uses, large numbers of landowners, and municipal boundaries.

The river segments that should receive the highest priority for state protection are determined by the legal stipulations of the Natural and Scenic Rivers Act and the State Parks Act (Chapter I). The Natural and Scenic Rivers Act identifies *natural* river segments as having the highest value in maintaining *"a rational balance between the conduct of man and the preservation of ... natural beauty."* The *natural* segment extends from the confluence of the Lumber River and Jacob Branch downstream to the North Carolina-South Carolina state line, excepting the Fair Bluff town limits.

According to the State Parks Act, the highest priority river segments for state protection should contain the most significant biological, geological, scenic, recreational, and archaeological resources. The resource analysis (Chapter IV) indicates that the highest quality resources are located in the *natural* segment. The biologic resource analysis established that seven of the 12 significant Natural Heritage Priority Areas, including the four largest areas, are located in the *natural* segment.

The scenic resource analysis indicates that the 39 miles of river receiving the highest scenic ratings are found in the *natural* segment. The geologic resource analysis found that two of the six important geologic sites are in the *natural* segment. The *natural* segment is also well suited for canoeing because the river is wider and contains fewer snags and is thus more navigable. Finally, the GIS analysis identified more land suitable for recreational development in the *natural* segment. As a result of the above analyses, the highest priority for establishing a state park unit will be in the *natural* segment.

The second priority for state park protection is the portion of the *scenic* segment from S.R. 1412 to the Maxton Airport Landing. This portion of the river has the highest scenic rating outside the *natural* segment, contains a geologic site, contains the third highest rated natural community, and includes the largest site suitable for recreational development outside the *natural*-designated segment.

In portions of these *natural* and *scenic* segments, the state should purchase the river corridor and significant Natural Heritage Priority Areas. The protection corridor should extend at least 250 feet from each shoreline to a defined boundary such as a road, creek, or property line.

Outside of these two priorities, the state will work cooperatively with local governments, state agencies and interested private organizations and citizens to achieve the legislative mandates. Protecting the river corridor and significant Natural Heritage Priority Areas will be an on-going process and should include such measures as land-use planning, zoning, and protection agreements with landowners. After the state park has been established to protect the two highest priority river segments, the

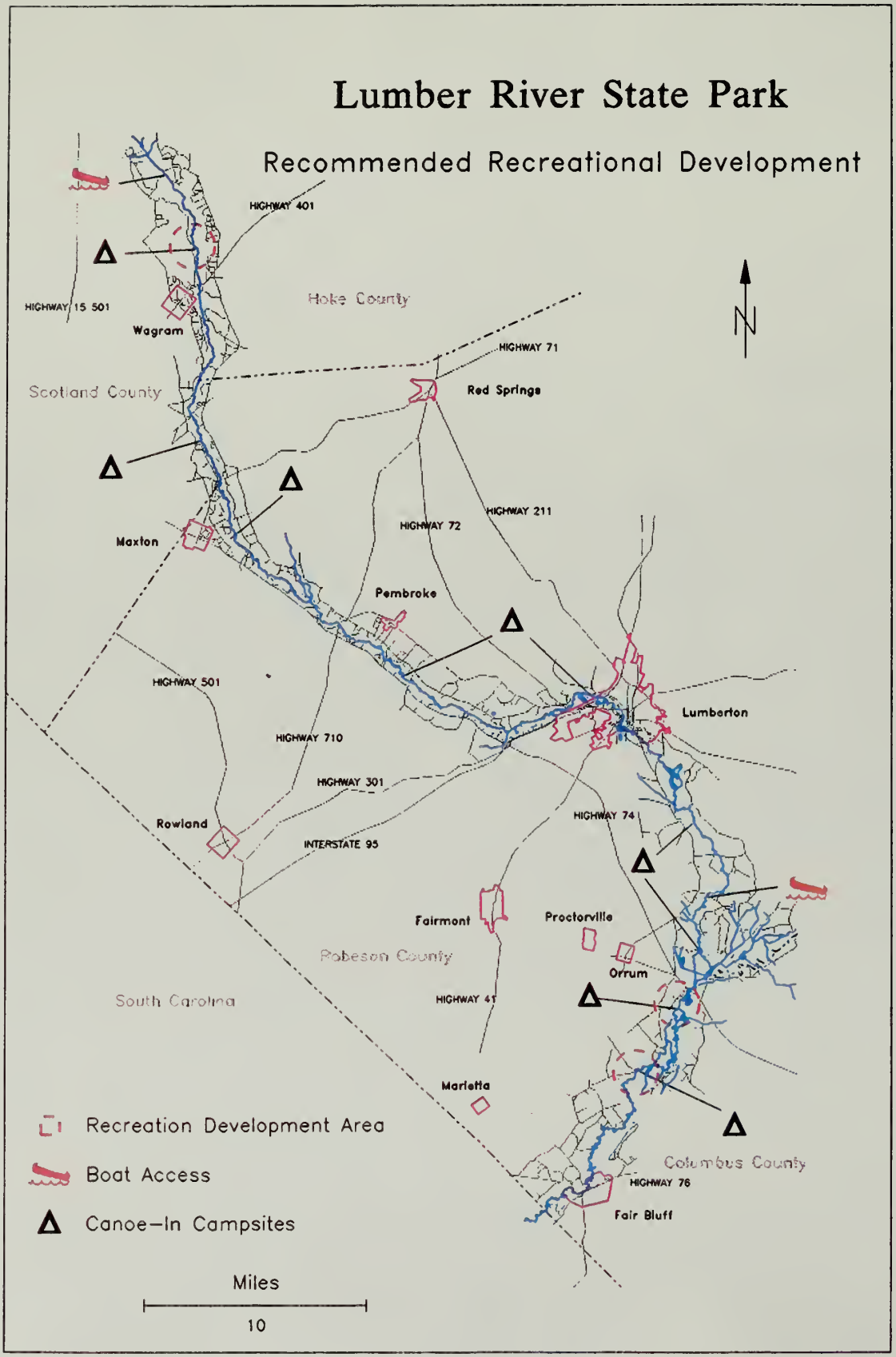

Figure V-1. Recommended Recreational Development

state will evaluate the status of the cooperative protection efforts. The need for additional state park actions will be determined by that evaluation.

Recreational Use

State park development will support multi-day canoe trips on the river. Visitor use facilities, such as canoe access areas and primitive campgrounds, will be needed to support such recreational use. The park will also provide interpretive programming as well as typical state park activities like camping, picnicking and hiking. These activities will occur primarily at two proposed park headquarters, Pea Ridge in the south (the major headquarters) and Chalk Banks in the north. The state park will provide increased opportunities for recreational experiences in the region, avoiding duplication of facilities already in existence or planned by private or public providers, such as the Wildlife Resources Commission, the City of Lumberton, and the N.C. Indian Cultural Center. These providers should be encouraged to offer recreational opportunities along this natural and scenic river system.

Proposed Boundaries

The boundary along much of the state park should include a vegetative buffer of at least 250 feet from each shoreline, with a preferred minimum width of 400 feet. Such a buffer will help to preserve scenic quality and thus continue to meet the scenic criterion for natural and scenic river designation. In some areas, such as Lumberton, the boundaries will be restricted to the river shorelines. Such a buffer may not require fee-simple land acquisition, where arrangements with landowners to create conservation or scenic easements serve the buffer's protective purpose. Also, various measures under existing or future local and municipal land use and zoning regulations may suffice in protecting the river and its associated resources, particularly in those segments classified as *recreational*. This buffer system, therefore, will be flexible, since it may be extended by the addition of larger blocks of land to the state park at various locations along the river.

Boundaries will be based on the following practical factors: (1) orientation of property lines along the river; (2) legal limits for development and conservation based on local and municipal regulations, especially where the river is classified as *recreational*, such as in Lumberton; (3) the scenic rating of the river segments; (4) the outermost boundaries of the most important Natural Heritage Priority Areas; (5) the extent of those lands that are recommended, acquired or in the process of being acquired for park development, conservation and other park purposes; and (6) the extent of existing development. These boundaries will afford viewing vistas that change on a seasonal basis, and they will reduce the effects of disruptive noises from activities beyond the buffer. To a certain degree, these lands will offer protection of water quality by serving as a filter for possible siltation caused by improper forest harvesting operations and from run-off of agricultural chemicals from adjoining farms.

Upon completion of the park, the boundaries will include the buffer on either side of the river's banks along part of the river, the most important of the 12 recommended Natural Heritage Priority Areas, and the areas recommended for recreational development (Figure V-1). These park lands will meet the archaeological, geological, biological, scenic, recreational, educational, historical, scientific and cultural criteria for state parks as specified in the State Parks Act and the Natural and Scenic Rivers Act.

Recreation Use Areas (Intensive)

Enhancing recreational use of the river will be an important purpose of the Lumber River State Park. It will be necessary, however, to manage the park's natural and cultural resources in a way that will limit the negative impacts that can occur with recreational use. A management system for intensive use will help to minimize any serious conflicts.

Intensive use areas are those areas of the park that are expected to receive the highest volume of recreational use, particularly within relatively limited spaces. Typical activities include camping,

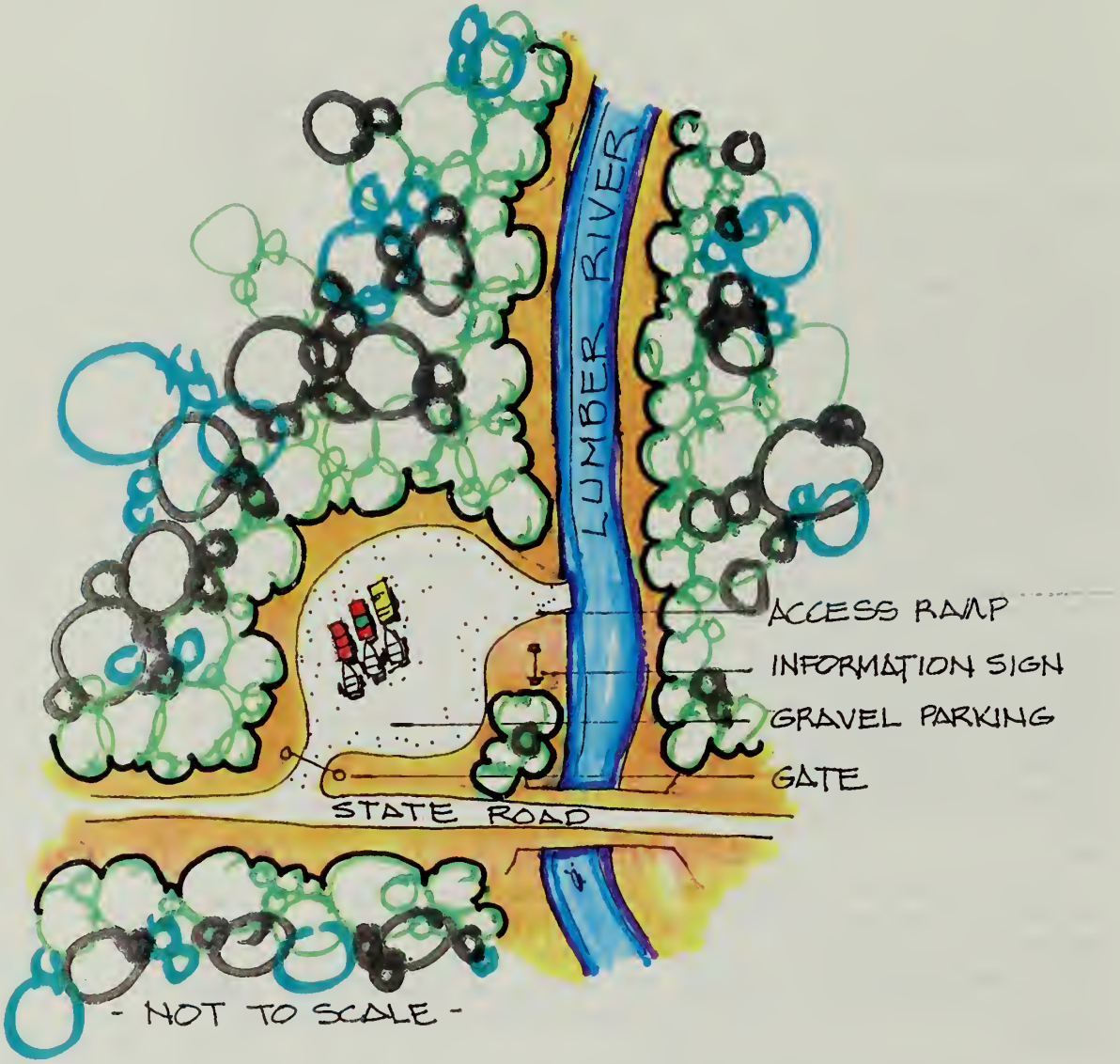

Figure V-2. Typical River Access

picnicking, trail hiking-jogging, and fishing. To facilitate participation in these activities, it is necessary to develop a physical infrastructure that might include access roads, parking areas, a visitor center, restroom facilities, picnic areas, piers, boardwalks, park ranger residences, park headquarters, and maintenance facilities. Usually such areas require intensive development and management. Even where no such physical improvements are necessary, such as for boating on the river itself, care should be taken to balance appropriate recreational opportunities with limitations on use so as not to detract from the recreators' experiences nor the visual and environmental quality of this unique resource. A number of facilities to support these intensive uses will be required at various locations along the river corridor.

Access Points

Access points along the river, some developed and some informal, exist at most bridge crossings. Most of these need improvements. The use of some should be discouraged because of potential public safety and traffic hazards. A number of these access points (the access areas managed by the Wildlife Resources Commission, for example) may need to be upgraded and maintained through a cooperative management program between the state and private or public agencies. Access improvements should be scheduled, where possible, with Department of Transportation bridge replacement projects.

At selected river access points, improvements are needed that may include the construction of adequate parking facilities and the placement of information signs, mile markers, trash receptacles, and sanitary facilities. Information kiosks or sign boards containing information related to park rules and regulations, emergency procedures, user safety, other access points, interpretation, camping opportunities, and area maps will be valuable resources for the park visitor. The level of development at each access point will be determined by the amount of available land suitable for development at each site and the relative amount of use the section of the river is able to accommodate with no significant negative impact on the recreational experience or on the quality of the resource. Figure V-2 is a generic drawing of a river access area.

Picnic Areas

Picnic areas for families, groups, and travellers are proposed for development at multiple locations along the river corridor. Picnic areas add to the convenience, safety and enjoyment of the visitor's experience, particularly when located near major access roads and scenic views of the river. In addition, picnic areas centralize use, reduce wide-spread soil compaction, and facilitate efficient maintenance.

Campgrounds/Campsites

Because the Lumber River State Park will be a natural attraction for canoeists interested in overnight trips along the river, the development of camping areas for both families and groups is essential. Campgrounds for family use (tents, recreation vehicles, etc.) and organized groups will be located at selected attractions and access points. Canoe camping should also be provided at seven- to ten-mile intervals, depending on the availability of suitable sites. These canoe campgrounds should be developed with limited improvements. Canoe campgrounds are important to canoeists on multi-day canoe trips, and the seven- to ten-mile spacing is an adequate distance for novice canoeists. Alternatively, for the advanced canoeist or for one engaging in vigorous canoeing, a day's trip will be twice the distance covered by those travelling at a slower rate, but still offering the opportunity to spend the night at one of the camps. In certain instances, the spacing may be greater than ten miles where float time is less than ten hours. Each camp location should be provided with sanitary facilities and trash receptacles. Wherever possible, canoe campsites should be accessible to park maintenance vehicles but not to the general public. Figure V-3 shows a typical canoe or primitive camp proposed for Piney Island.

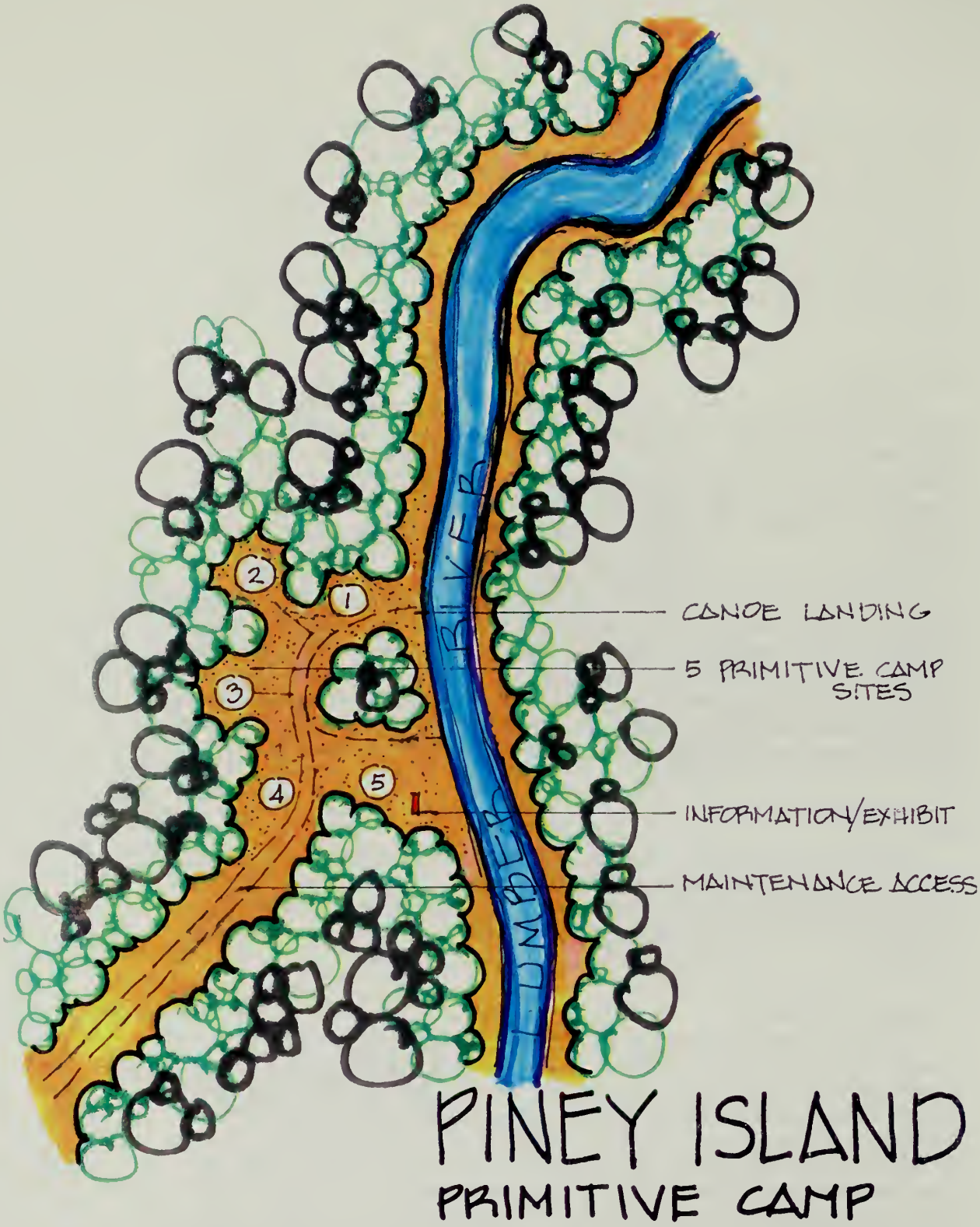

Figure V-3. Piney Island Primitive Camp

Fishing

Fishing is a popular activity along the entire length of the river. For many local residents, bank fishing is traditional and should be encouraged. Because much of the Lumber River is inaccessible by road, fishing is concentrated at Wildlife Resources access areas and road crossings. Because of fallen trees, fishing from power boats is restricted mostly to lower sections of the river (below Boardman) and to the section passing through Lumberton.

Fishing piers may be included at selected areas along the river, primarily in established fishing spots where erosion from over-use would be detrimental. Fishing piers tend to minimize bank erosion by concentrating use and maximizing user safety. Where such piers currently exist, such as the Wildlife Resource Commission access areas at Wagram and High Hill, it is recommended that they continue to be maintained by that agency. Because some anglers are reluctant to use piers and other improved facilities, however, it may be necessary to maintain certain river habitats within casting distance of the improved sites.

Dispersed Use Areas

Dispersed use areas are parcels of land along segments of the river that allow for a greater dispersal of visitors over the park resources so their leisure experiences and the resources are not unreasonably affected. These would include all trails and nature study areas. Suitable activities include canoeing/boating, fishing, nature study, and other dispersed recreational activities. Supporting facilities need to be developed for these activities. Emphasis will be placed on improvements to existing canoeing/boating access areas, the development of fishing piers, and the development of trail systems.

Canoe Trails

The entire river is a canoe trail, but it has been sectioned into two major canoe trails discussed in Chapter III. Factors that are considered in selecting canoe trails include the meandering nature of the river, the differences in width and depth, fluctuations in seasonal water volume and flow intensity, the number of ingress, egress and resting places, and the particular attractiveness of certain portions of the river either for conservation or recreation. Mileage markers will be erected along the river to aid navigation. Downed trees and other obstructions should be removed only to the extent that allows a navigable and safe path for small boats and canoes.

Boats or canoes should be rented to visitors by the park, commercial enterprises, or government agencies. A number of canoe rental shops operate in the Wagram, Burnt Island and Fair Bluff areas as well as at Pembroke and Lumberton. Among these are the Upper Lumber River Association, the Lumber River Canoe Club, and the Robeson County Recreation Department.

Intensive canoeing activity should be encouraged within the eight-mile stretch of river through Lumberton in Robeson County, ranging from McNeill's bridge near N.C. 72 in Lumberton to its intersection with N.C. 72 at High Hill. This section of the river is designated as *recreational* and has good accessibility. Canoe regattas have taken place here. The Lumber River Canoe Regatta could be revived in Scotland County. It formerly took place on what is the highest-ranked (ninth overall) scenic segment of the river in the north. This segment of river flows past the recommended northern park headquarters area at Chalk Banks.

The Wildlife Resources Commission currently conducts stream obstruction removal activities on the Lumber River and will continue to clear a passageway for small boats. Continued stream obstruction removal by the Commission is recommended.

Hiking Trails/Boardwalks

Hiking/interpretive trails will be developed where land is available and where there are significant biological, scenic, archaeological, historical, or cultural sites. Such trails will not only serve a recreational purpose, but will also be linked to special use areas that are important for their scientific, geological, historical, cultural, archaeological, or paleontological values. The trails may be developed

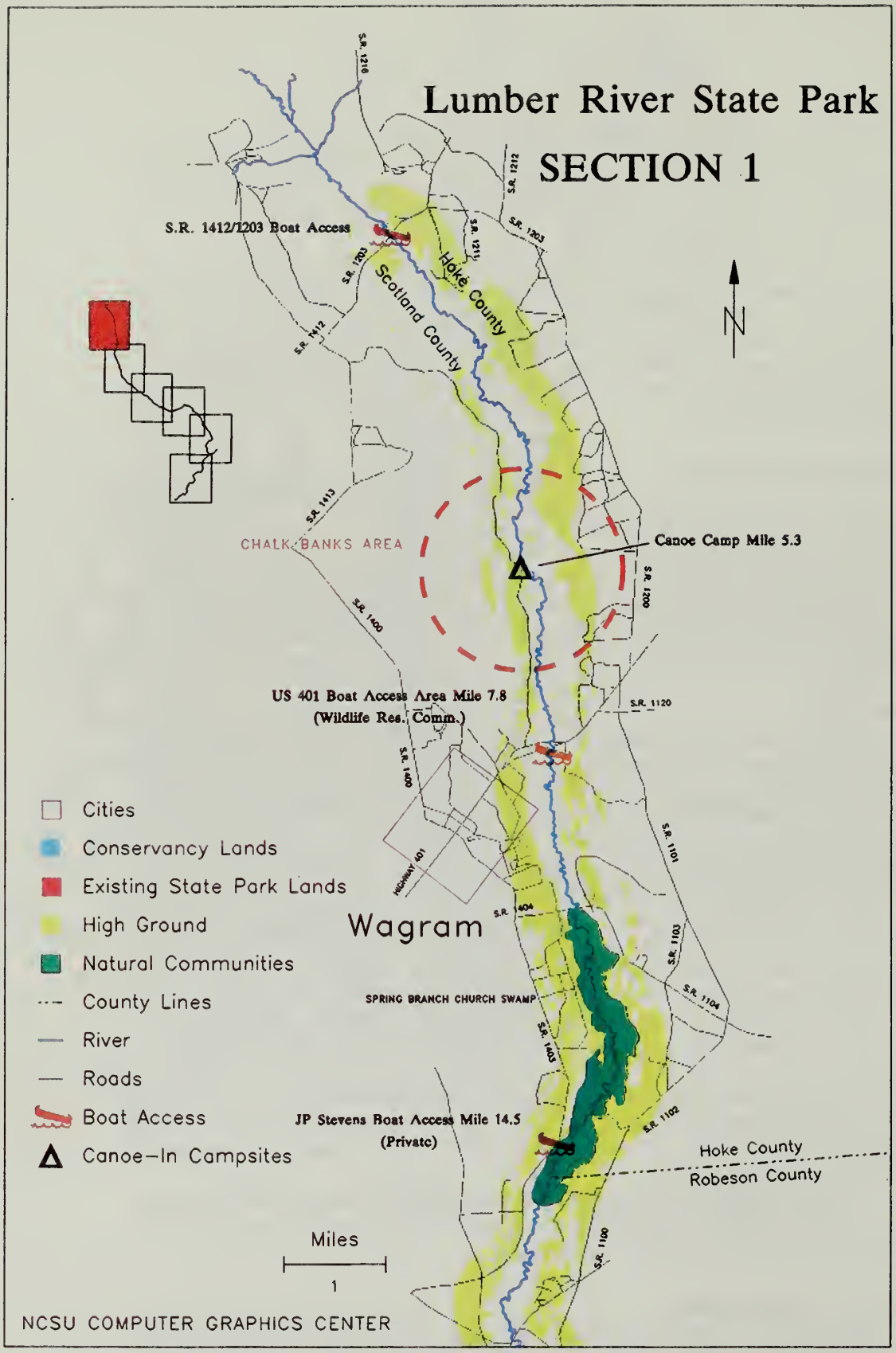

Figure V-4. Section 1

on lands above the flood level and linked where necessary by boardwalks on lands subject to flooding. These trails may also serve as access to primitive camping areas for those interested in backpacking. Trail development will be emphasized at the park visitor center and at park areas containing significant natural phenomena. A greenway-type trail would make an excellent recreational resource within the city limits of Lumberton, although local government agencies should accept responsibility for its development.

The best opportunities for trail development exist along the lower Lumber River where the river and its corridor are less developed than along the upper reaches. Potential exists for the development of at least five trail systems: (1) at the Northern Park Headquarters in Section 1; (2) from Piney Island into Net Hole in Section 5; (3) at the Southern Park Headquarters in Section 5; (4) from Big Swamp to Tolarsville on the Columbus/Bladen County line in Section 6; and (5) from Big Sandy Ridge on the old tram road that leads to Fair Bluff in Section 6. Trails can be established on stable canal embankments, and, where convenient, it may be necessary to link trails with existing dirt roads. Consideration should also be given to establishing a self-guided canoe nature trail into the Big Swamp area northeast of the Net Hole area.

Conservation Areas

The state recognizes the need to identify, acquire, conserve and protect important natural resources and open spaces. In this regard, four areas have been or are in the process of being acquired as park lands: the Lumber River Conservancy area (owned by the Conservancy); Piney Island; the Net Hole area; and Princess Ann. Eight of the 12 areas identified as Natural Heritage Priority Areas comprise a large part of the park areas recommended for purchase as conservation areas. Three bluffs of outstanding geomorphological importance fall within park areas and will be protected for their uniqueness. In addition, the three archaeological sites discussed in Chapter IV merit conservation for their uniqueness and proximity to the river. Once park land acquisition is complete, two of these will be the responsibility of the state.

Recreation Master Plan Recommendations

Because of the 115-mile length of the river and the amount of digitized map data, the Lumber River has been divided into six sections for planning purposes and ease of reference. The recreational development and land acquisition proposed for each of these six sections is outlined below. Selecting the type of recreational development will be guided mainly by the particular designation of that segment of the river under the Natural and Scenic Rivers Act. In each section, areas will be identified for their potential in the future development of the park.

Section 1

This 15-mile section of the river (Figure V-4) is designated as *scenic* under the Natural and Scenic Rivers Act. It runs along the Scotland-Hoke county line from the Turnpike Bridge intersection at S.R. 1412/S.R. 1203 downstream to the Hoke-Robeson county line. This section is highly rated for its scenic value by the Lumber River State Park and State River Citizens Advisory Committee (Table IV-2). The Spring Branch Church Swamp Natural Heritage Priority Area is in this section. The northern park headquarters will be located in this section at Chalk Banks. Four locations have particular recreational significance in this section: the S.R. 1412/S.R. 1203 intersection, the Chalk Banks area, the U.S. 401 intersection, and the J.P. Stephens access area.

The farthest upstream location proposed for state park management and development will be in the northwestern quadrant formed by the junction of S.R. 1412/S.R. 1203 (Turnpike Bridge) and the river. This area is significant as it marks the beginning of the Lumber River and is within the *scenic* designation. An informal boating access currently exists here. Facilities recommended for development include an improved boat launch, parking, and information sign. (Figure V-5 is a conceptual drawing of the SR 1412/SR 1203 river access area.) Facility development will require approximately 15 acres to provide a buffer and to avoid conflict with hunting activities on game lands managed by

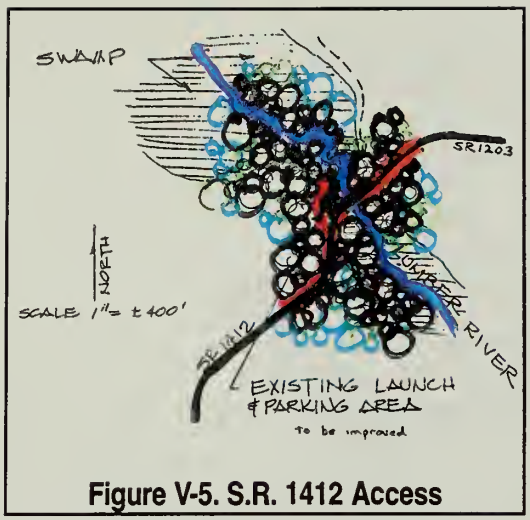

Figure V-5. S.R. 1412 Access

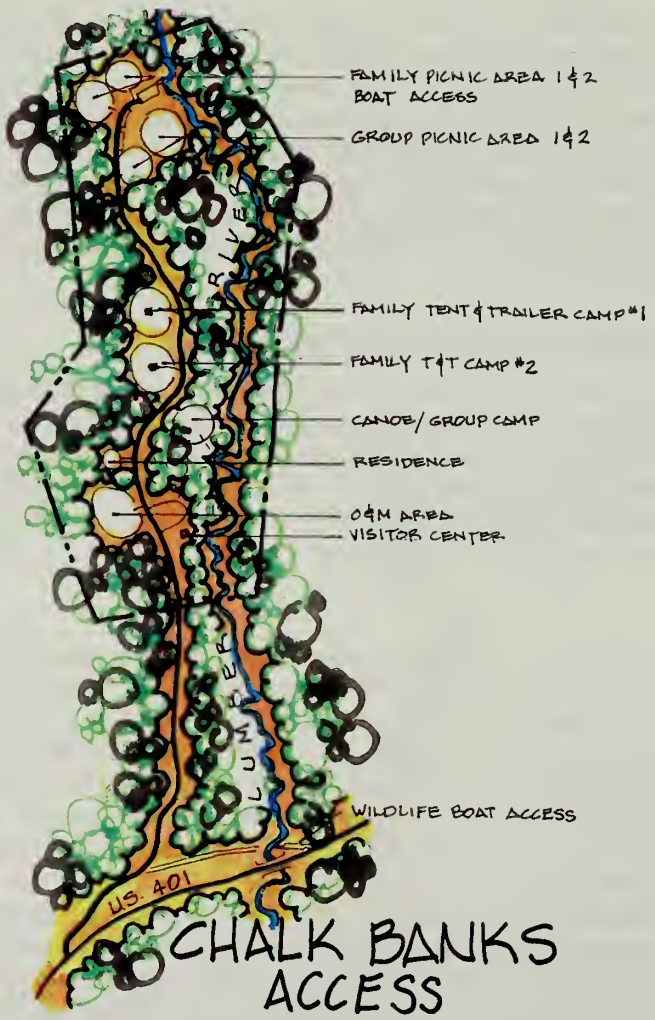

Figure V-6. Chalk Banks Access

the Wildlife Resources Commission.

The proposed location for the northern park headquarters is at Chalk Banks (Figure V-6), which is accessible by dirt roads about one mile north of U.S. 401 and about four miles east and south of S.R. 1413. The proposed park area is its widest at R.M. 5.3, where it is 3/4 of a mile wide. The Chalk Banks area has sufficient high ground for major park development. It is near the town of Wagram. This location of the northern park headquarters will be economically advantageous to the rural communities in Scotland county. The site has considerable potential to attract visitors from the Southern Pines, Pinehurst and Fayetteville areas.

Chalk Banks is reasonably located for the management and protection of park resources in the upper Lumber River region. It has a diversity of resources typical of a river floodplain and is within easy reach of the Spring Branch Church Swamp Natural Heritage Priority Area. This section of river ranked ninth in scenic value of the 32 sections of the river, which is the top ranking outside of the *natural* designated section. It has an outstanding bluff that merits protection. The area is ideal for a canoe campground, which could serve as the first stop for multi-day canoeists. Facility development will include campgrounds, picnic facilities, trails, restrooms, parking, an auditorium, office, maintenance center, ranger residences, and utilities. Facility development and resource protection will require acquisition of approximately 500 acres of land in order to provide a buffer and avoid conflict with hunting activities on adjacent private lands.

Two and a half miles downstream from Chalk Banks is a Wildlife Resources Commission boating access, located in the northeastern quadrant at the U.S. 401 intersection with the river. This area has safe access off U.S. 401. The parking area should be improved and should continue to be managed by the Wildlife Resources Commission.

Between S.R. 1404/S.R. 1104 (River Road) and just beyond the Hoke-Robeson county line is the Spring Branch Church Swamp Natural Heritage Priority Area. Among the 12 Natural Heritage Priority Areas, it is rated number three in the N.C. Natural Heritage Program's inventory of the Lumber River. The Spring Branch Church Swamp Natural Heritage Priority Area is important as an outstanding example of floodplain in which the unique plant Sarvis Holly *(Ilex amelanchier)* is found. It is abutted by the J.P. Stephens tract in the south. This area is accessible by canoe and by trails off S.R. 1403 in the west, S.R. 1404 in the north and S.R. 1103 in the east. Acquisition of this natural community by the state is recommended.

Within the Spring Branch Church Swamp is the J.P. Stephens access off S.R. 1403 (R.M. 14.5). Due to the presence of the water intake structures and transformers, the area is unattractive and could present safety hazards, especially to children. The J.P.Stephens company should be asked by the Division of Parks and Recreation to improve the access, address safety concerns, and continue managing the area as a limited public access area.

River corridor protection is needed in Section 1 for sections not protected by the acquisition of the Natural Heritage Priority Area or other park lands. The buffer needed for corridor protection consists of a segment from the S.R. 1412/1203 (Turnpike Bridge) intersection to the upper Chalk Banks area (4.8 miles), and a segment from the lower Chalk Banks area to the Spring Branch Church Swamp Natural Heritage Priority Area (3.6 miles). Because Chalk Banks is recommended for the northern park headquarters and will have significant recreational development, permanent protection of the river corridor above and below Chalk Banks becomes even more important.

Land recommended for acquisition in Section 1 totals approximately 1,381 acres: 250 acres for buffer, 616 for conservation of the Spring Branch Church Swamp Natural Heritage Priority Area, and 515 for recreational development (15 acres at S.R. 1412/S.R. 1203 and 500 acres at the Chalk Banks area). This acquisition would provide for continuous state ownership of 15.5 miles of river corridor, allow for recreational development, and protect a significant natural community and geological site. All the acquisition and development recommended in Section 1 is proposed for Phase II of the park.

Section 2

This section begins at the Hoke-Robeson county line and extends just beyond the N.C. Indian Cultural Center to Red Banks at S.R. 1354, a distance of 20.7 miles (Figure V-7). This portion of the

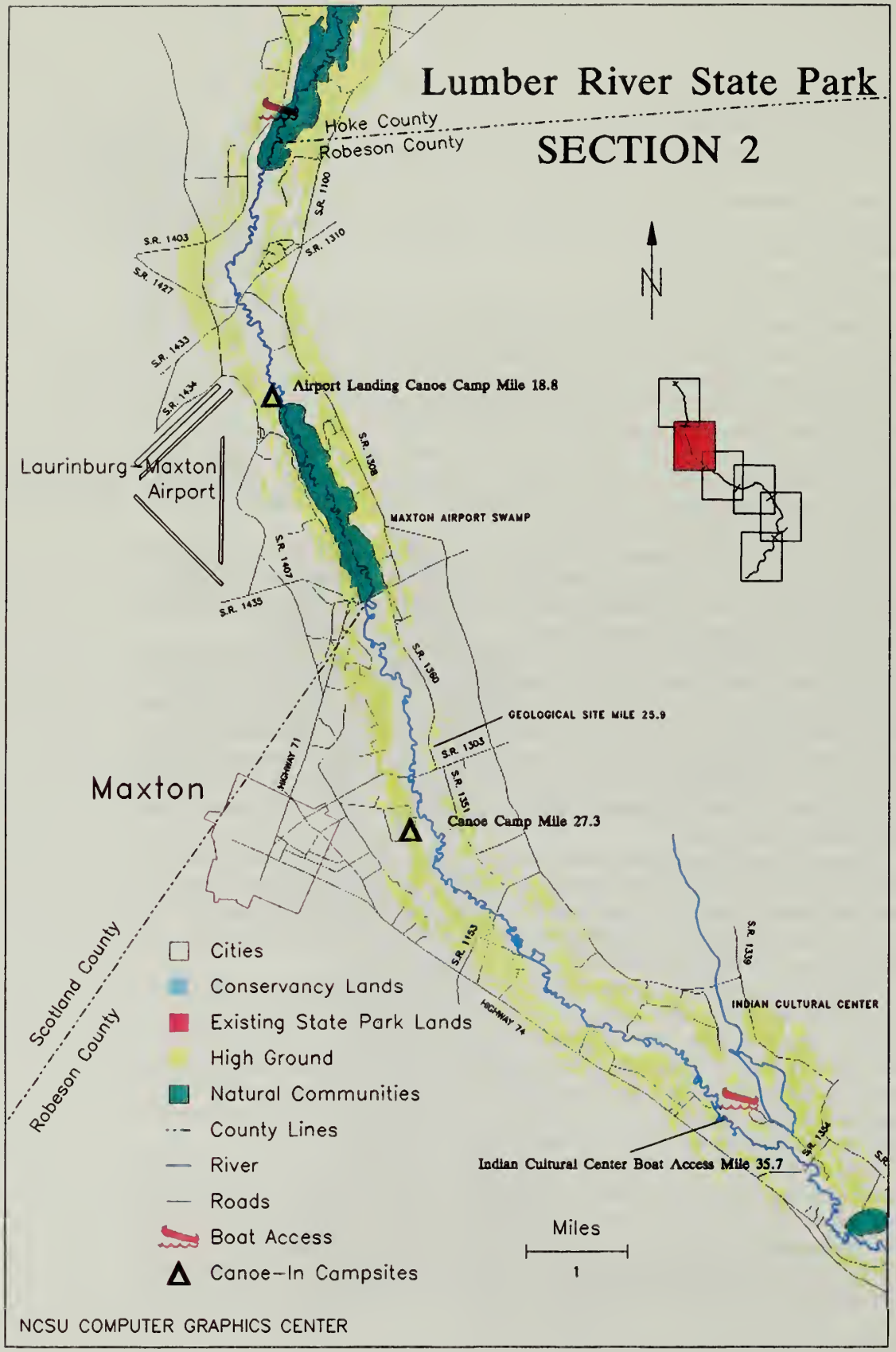

Figure V-7. Section 2

river is classified as *scenic*. The towns of Laurinburg and Maxton lie to the west. The Maxton Airport is located to the west of the river in the northern part of this section. The section is rated fairly high for its scenic value (Table IV-2). Seven locations have particular recreational significance in Section 2: the S.R. 1433/S.R. 1310 intersection; a canoe camping area on the Maxton Airport lands; the N.C. 71 intersection; the S.R. 1303 intersection; a canoe camping area down from S.R. 1303; the S.R. 1153 intersection; and the S.R. 1354 intersection.

A special note should be made regarding effects of the implementation of the N.C. Indian Cultural Center Master Plan. The master plan for the Lumber River State Park should not conflict with the planned development of the Indian Cultural Center. The master plan for the N.C.I.C.C. includes facilities for canoeing, fishing, camping, and hiking. The Indian Cultural Center master plan should be implemented because it has the potential to make a significant contribution to the economic, recreational, social, and cultural aspects of the surrounding community.

Informal river access currently occurs at the S.R. 1433/S.R 1310 intersection known as McGirts Bridge. Users park their vehicles on both shoulders of the road and enter the river using the higher and drier right-of-way in the northwestern quadrant of the intersection. This situation is hazardous because of proximity to the road and its traffic. High land is very limited and is surrounded by extensive wetlands. No improvements should be made that would encourage additional use of this area.

Development of a canoe campground by the state is recommended at the site known as the Airport Landing (Figure V-7 and V-8). This location provides a good overnight point for multi-day users of the river and would have little effect on the natural resources. Access to the area is off S.R. 1407. Approximately 15 acres of land will be sufficient for the development of the camping area. The site is currently owned by the Maxton Airport Authority.

State park acquisition of the river corridor between Spring Branch Church Swamp and the Airport Landing (approximately 150 acres) is recommended. When linked with corridor acquisition recommended in Section 1, permanent protection of 18.8 miles of river corridor will result.

An informal access exists at the Campbell Bridge intersection at N.C. 71 in the southwestern quadrant. Unfortunately, no high ground exists on which to make improvements. The access will continue to be used, but the site should not be promoted as a public access because of the narrow road shoulder and highway traffic.

Further downstream at the S.R. 1303 intersection at Old Red Springs Road is a concrete canoe/small boat launch ramp. No recommendations are made for any state park development here. This site can continue to be used as it currently exists.

A canoe campground should be located around S.R. 1303. Such a location would be desirable as an overnight stop for multi-day canoeists. The site can be located following Phase I and II development.

There is a canoe/small boat landing at the S.R. 1153 intersection in Alma. No state park improvements are recommended because of wetlands and highway traffic. The access can continue to be used as it currently exists.

There is also a canoe/boat launch at the S.R. 1354 intersection at Red Banks. No development is recommended here because this area is close to the N.C. Indian Cultural Center, whose plans for the development of recreational facilities include a canoe launch.

The Maxton Airport Swamp Natural Heritage Priority Area is located 1.9 miles downstream from S.R. 1433 (McGirts Bridge) and extends to N.C. 71 (Campbell Ridge). It ranks

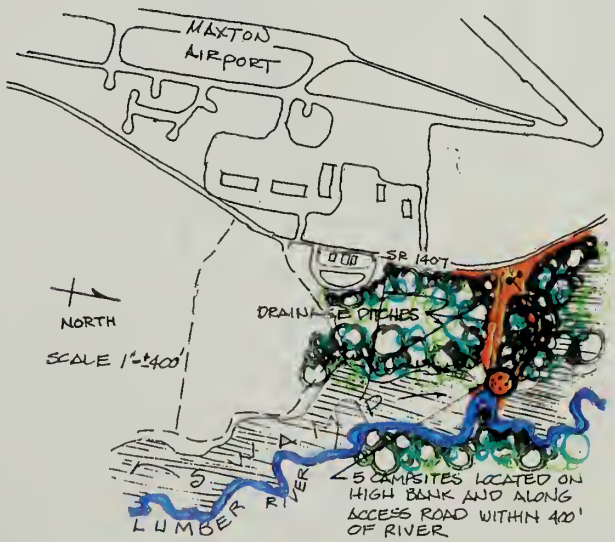

Figure V-8. Airport Canoe Camp

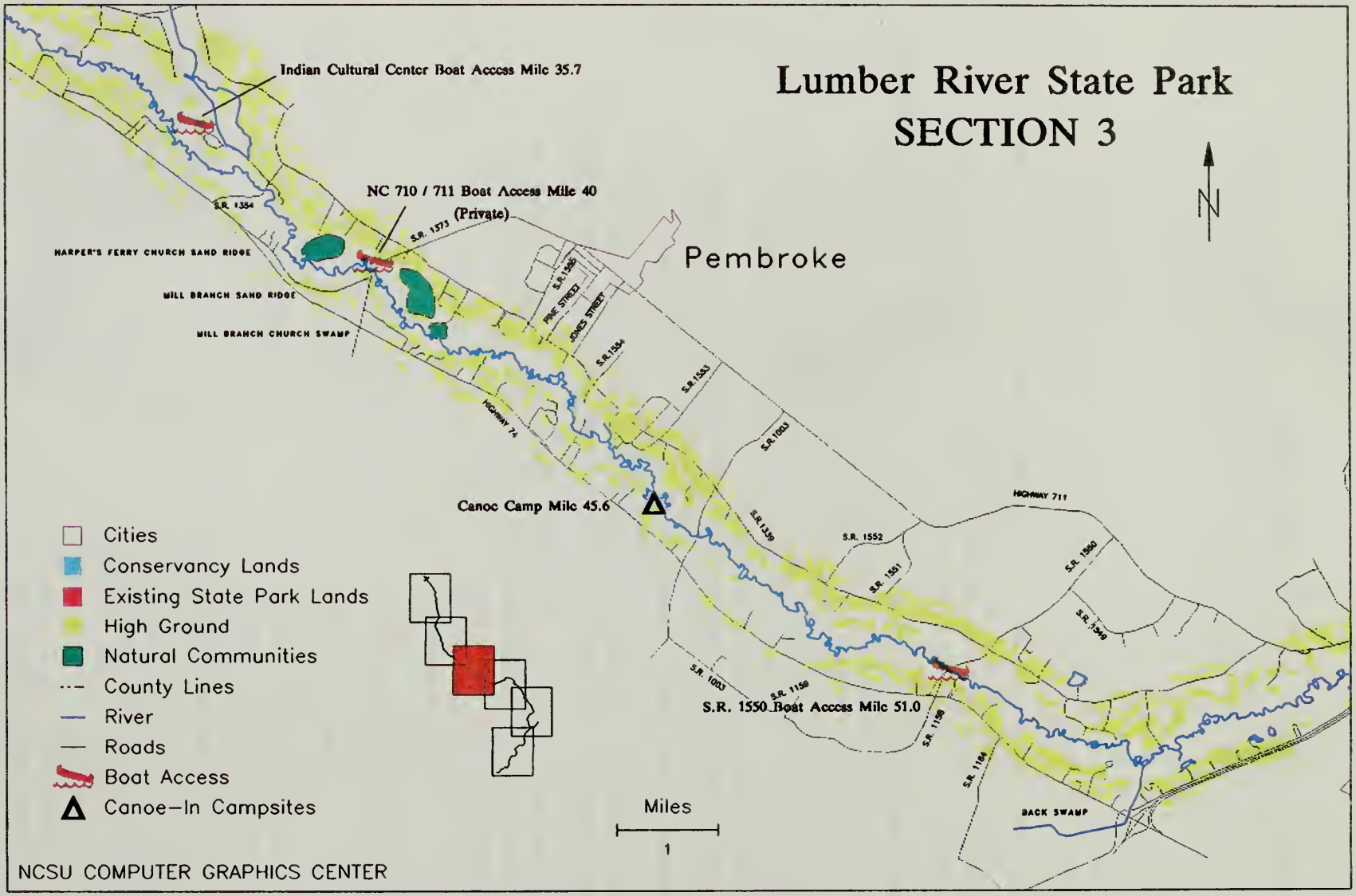

Figure V-9. Section 3

fifth in priority among the 12 Natural Heritage Priority Areas identified in the N.C. Natural Heritage Program's inventory of the Lumber River. This area is important as an outstanding example of floodplain in which the unique plant Sarvis holly occurs (Table IV-1). It is accessible by canoe and trails off S.R. 1308 and S.R. 1461. Most of this community is owned by the Maxton Airport Authority. Protection of the area is recommended, but not through state park land acquisition. It is hoped to be accomplished through cooperative agreement between the state and landowners or by conservation or scenic easements.

A geological site (R.M. 25.9), probably of Tertiary age, occurs on the river's left bank just downstream from Red Banks. It is a five-foot outcrop of light grey, sandy clay overlain by 10 feet of yellowish-brown to grey arkosic sand.

Corridor protection from the Airport Landing downstream and protection of the Maxton Airport Swamp Natural Heritage Priority Areas are needed but are not proposed to occur through state land acquisition. Rather, the state will work cooperatively with riparian landowners and local governments to obtain river corridor and Natural Heritage Priority Area protection. Various protection mechanisms, such as conservation easements, registration, dedication, donations, etc., will be used in an attempt to permanently protect this section of the river.

Total acreage recommended for state park acquisition in Section 2 is approximately 165 acres, consisting of 150 acres of corridor between the Spring Branch Church Swamp and the Airport Landing, and 15 acres needed for the Airport Landing. Both the acquisition of 165 acres and development of the Airport Landing are to be a part of Phase II of the park. A canoe campground area will later be needed near S.R. 1303 (Phase III).

Section 3

This section of the river (Figure V-9) is 18.8 miles long and lies within Robeson County. It begins at Red Banks at S.R. 1354 and terminates just north of the intersection of U.S. 301, U.S. 74 and I-95 at the confluence of the river with Back Swamp (R.M. 56.3). It lies within the *scenic* designation of the river. The city of Pembroke is located near the beginning of the section at the northeastern corner, and the city of Lumberton lies due east of its lower end. The entire section was rated high in scenic value by the Lumber River State Park and State River Citizens Advisory Committee (Table IV-2). Three of the 12 Natural Heritage Priority Areas are located at the upper end of this section. They are Harper's Ferry Church Sand Ridge, Mill Branch Sand Ridge, and Mill Branch Church Swamp, which are respectively rated number 9, 1 and 6 in priority in the N.C. Natural Heritage Program's inventory of the Lumber River. The recreational value of the area is excellent, as is access to this section. N.C. 711 runs parallel to the river on the north side and U.S. 74 on the south side. Five locations have particular recreational significance in this section: a canoe campground near R.M. 45, and the intersections of the river with N.C. 710-711, S.R. 1554, S.R. 1003 and S.R. 1550.

Section 3 is also the center of Native American settlement and culture, with Pembroke as the focal point of this heritage. Native American history and folklore provide a basis for strong cultural interpretation and educational programs. Within the four-county region, this area lying between the cities of Pembroke and Lumberton in Robeson County is among the most populated and most heavily used sections of river. Section 3 of the river has been used traditionally for recreational fishing and canoeing.

A canoe/boat landing is located in the northwestern quadrant at the Harper's Ferry Church near the N.C. 710-711 intersection. It should continue to serve as an informal canoe access. The church has allowed public use of this access area and, it is hoped, will continue to do so.

There is an informal canoe/boat launch at the Three Bridges intersection at S.R. 1554. No state park development is recommended, but it can continue to function as an informal access area.

Downstream from S.R. 1554 is a small privately owned park, Pine Lake Park, located on the Pembroke side of the river. The park contains two swimming pools and thereby serves a public recreational need for swimming. The park also contains picnic shelters and tables and a pavilion. It is hoped the park will continue operating under private ownership.

A canoe campground near R.M. 45 is needed for multi-day users canoeing the river. It should be

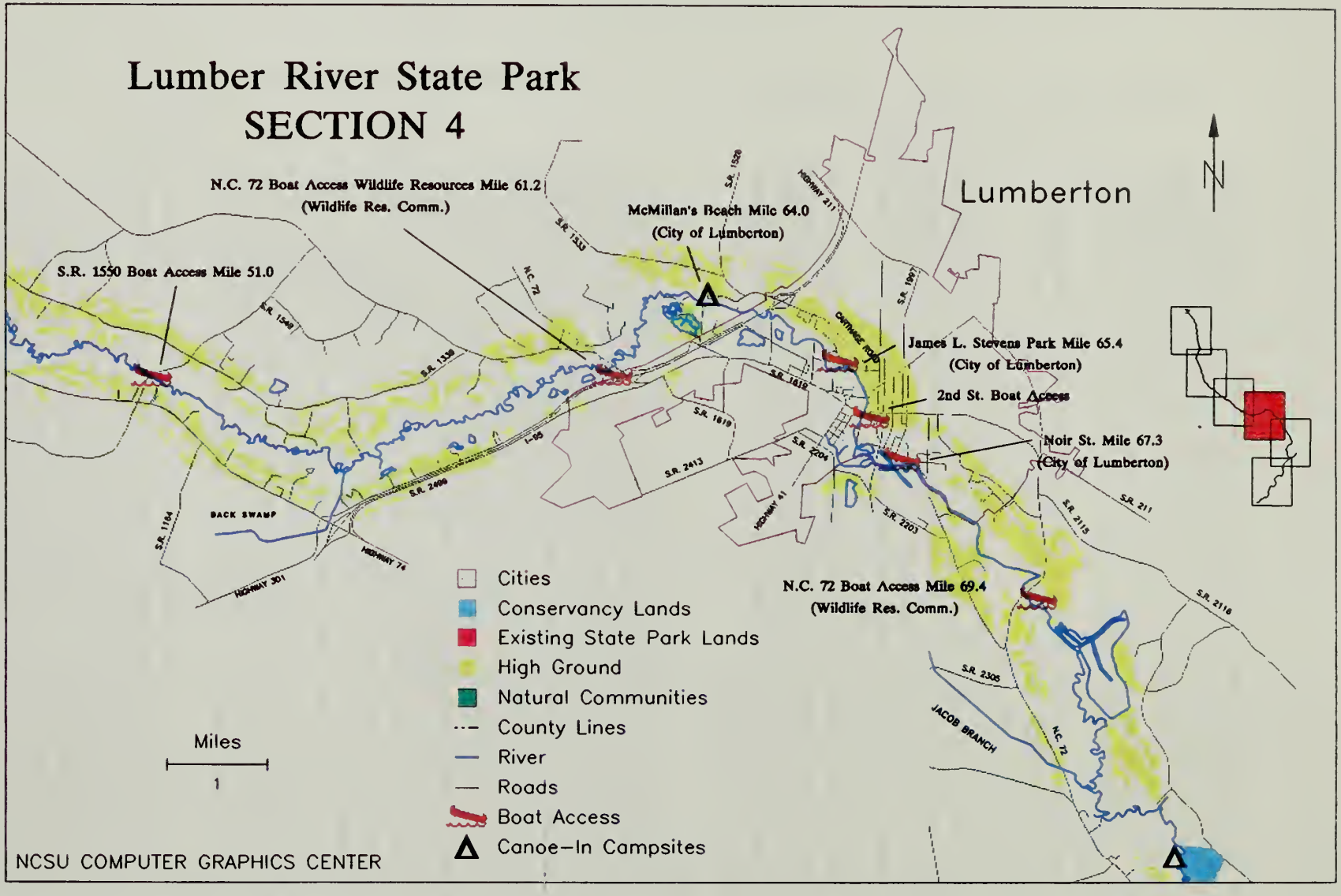

Figure V-10. Section 4

established as a part of Phase III of the park. A site with high ground next to the river and with road access for maintenance is needed.

Another informal river access is located at the Chicken Road intersection at S.R. 1003. It will continue to serve its traditional function as an informal access point. Adequate parking areas currently exist along the road shoulder near the bridge.

At the Lowe Road intersection at S.R. 1550, an existing canoe/boat launch is located in the southeastern quadrant. It also should continue to serve its traditional function as an informal access point.

Section 3 contains three Natural Heritage Priority Areas of the 12 identified in the N.C. Natural Heritage Program's inventory of the Lumber River. Harper's Ferry Church Sand Ridge occupies approximately 56 acres and is ranked ninth in importance; it has a disjunct population of chrysoma (*Chrysoma pauciflosculosa*). This species is more commonly found in states along the Gulf Coast. Mill Branch Sand Ridge occupies approximately 66 acres and ranks first in importance; it also has a large, robust population of chrysoma. Mill Branch Church Swamp is the smallest of all the communities. It occupies approximately 13 acres and is ranked sixth in importance; it is an excellent example of a Pine-Orchid-Insectivorous Plant Savanna representative of the lower Coastal Plain in Robeson County. These areas total approximately 135 acres, but only 79 are recommended for protection, since the Harpers Ferry Church Sand Ridge is on developed lands. These Natural Heritage Priority Areas should be protected and managed as natural resource areas for scientific research and education; public access should be restricted, but programs for interpretation should be developed. It may be feasible for Pembroke State University to manage these Natural Heritage Priority Areas, working in cooperation with the N.C. Division of Parks and Recreation.

No areas are recommended for state acquisition for Section 3 in either Phase I or II. A suitable canoe campground needs to be located as part of Phase III development near R.M. 45. Corridor protection along Section 3 is needed. It is proposed that the state work with local governments and private landowners to establish a buffer and achieve permanent protection of the river corridor.

Section 4

This section is 16.6 miles long and lies entirely within Robeson County (Figure V-10). It begins north of the intersection of U.S. 301, U.S. 74 and I-95 at the confluence of the river with Back Swamp and extends downstream to the confluence of the river with Jacob Branch. This section of the river is designated as *recreational* and includes the city of Lumberton and its environs, including the CP&L Weatherspoon Plant and its cooling lake. Two of the three boating access areas on the Lumber River managed by the Wildlife Resources Commission are within this section. The section was rated reasonably high in scenic value upstream of I-95, average through Lumberton, and fairly high from High Hill to the Jacob Branch confluence. Although the portion through the city received the lowest ratings of all river segments, there were scenic values that allowed an average rating for most of the section (Table IV-2). The reasons for the lower rating were mainly the noise and loss of natural visual quality from I-95 and the city of Lumberton. There are five primary access points. They are located at McNeill's Bridge (just upstream of the intersection of the river with N.C. 72 in western Lumberton); James L. Stevens Park; between the 2nd Street bridge and the railroad bridge; Noir Street Park; and at N.C 72 (High Hill) south of Lumberton.

This section of the river lies within the city of Lumberton. State park management should be confined to the river itself in inter-governmental cooperation with the city. No Natural Heritage Priority Areas requiring state park management occur in the area. In addition, there are no features that allowed this section of the river to be classified as *natural* or *scenic*. As a result, it lacks characteristics that would make it a high priority for state park status. Once the recreation plans for the city and Robeson County are completed, adequate outdoor recreation opportunities for local residents will be available.

The river access at McNeill's Bridge (R.M. 64.2) is a distance of about 11 miles downstream from the S.R. 1550 intersection (Lowe Road) in Section 3. This access is managed by the Wildlife Resources Commission and should continue to fall under its jurisdiction. The Commission should be

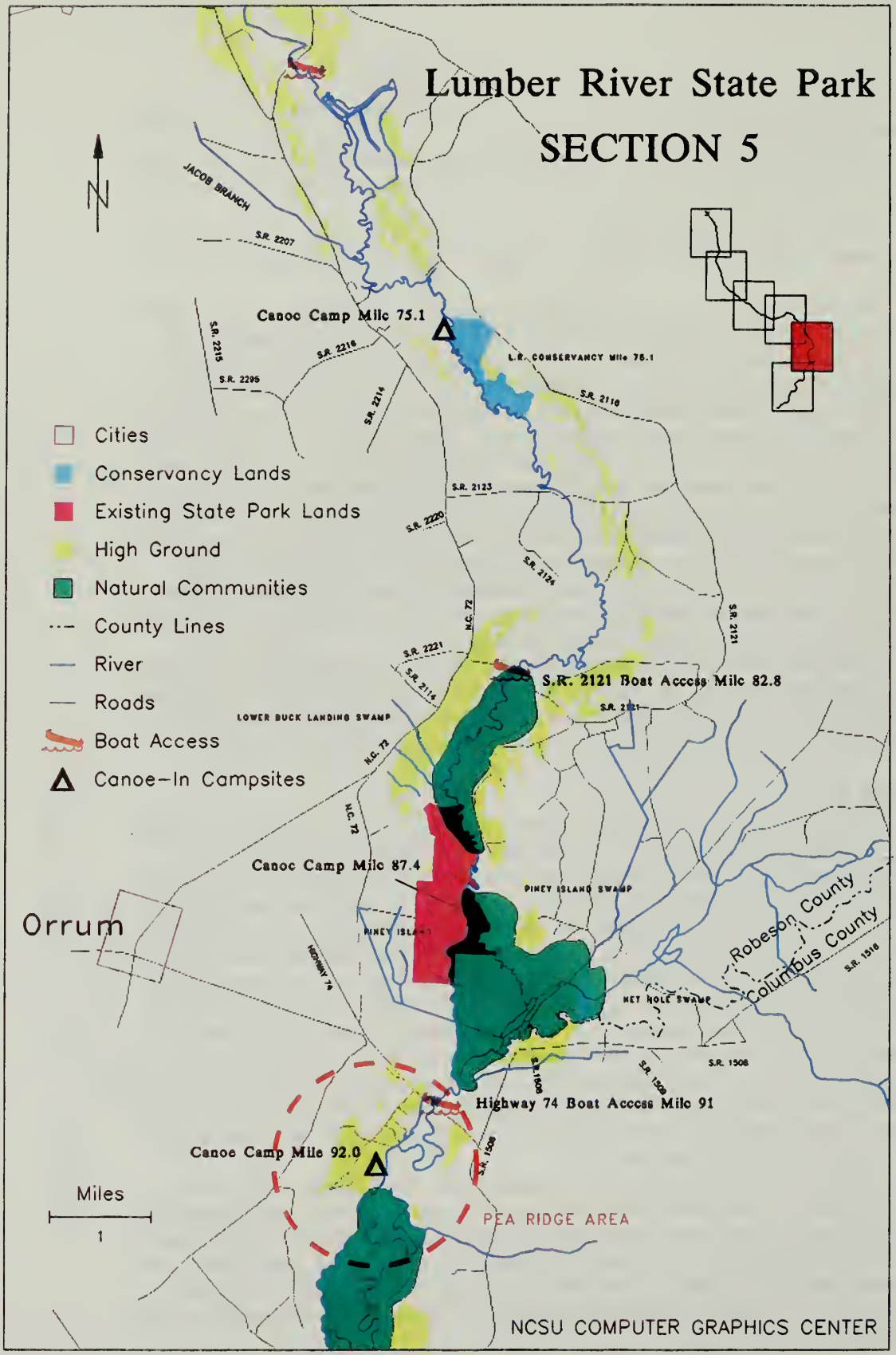

Figure V-11. Section 5

approached with recommendations for upgrading the facility with paved entry and delineated parking spaces. The remainder of the river within the city limits will be administered by the city of Lumberton, and the recommendations that follow are for guidance in park development and management.

Some river-based recreational development has taken place in the city of Lumberton. Further development in this section, however, will concentrate on providing for the interstate and highway traveler while continuing to care for local residents. Lumberton can capitalize on its recreational potential to attract the highway traveler for more than just a one-night stay. The Parks and Recreation Master Plan for Lumberton has recommended future recreational development. As that plan is implemented, it will result in needed recreational facilities and economic opportunities for the city.

The existing parks in Lumberton have the potential for further development. The 12-acre James L. Stevens Memorial Park has a boat ramp, picnic facilities and parking. The six-acre McMillan Beach area can be integrated into the trail system, and it affords opportunities for boat and canoe rest stops as well as for camping. There is a need to develop McMillan Beach (R.M. 64.0) or another site nearby as a canoe camp for multi-day users. A campsite is needed within the city so that there will not be too great a distance between campsites along the river. The 142-acre Luther J. Britt Park has picnic facilities, trails, playgrounds, dock, beach, two lakes and basketball courts. Major special events that are river-based can continue to be observed annually. The Noir Street Playground and the Turner-Gore Play Lot can become river access points by upgrading the existing facilities. Mill Pond is a 185-acre site with park boundaries in close proximity to the river that can be linked to other city park areas, including McMillan Beach and Luther Britt Park, by a greenway system (Gardner Gidley and Associates, 1991).

The N.C. 72 intersection known as High Hill (below Lumberton) is the third area managed by the Wildlife Resources Commission. This location will continue to fall under WRC jurisdiction. The Commission should be approached with recommendations for upgrading of the facility with paved entry and delineated parking spaces.

There is a geological outcrop on the river about one-quarter mile upriver from the North Carolina Wildlife Commission's Boating Access at N.C. Highway 72 (High Hill). This area contains mollusk fossils belonging to the Pliocene Duplin fauna of the Yorktown Formation. Because these outcrops are rare, this area should be protected. It is recommended that the city of Lumberton and the state work cooperatively to achieve its protection.

The CP&L landholding includes an industrial plant and a lake fed by a tributary that enters the river. This area is under private ownership, and it serves an indispensable function in the supply of electricity to the local region. The water in the lake is warmer than the adjacent waters of the river since it is used to cool the water coming from the industrial power plant. Further discussion on the effects of the lake is given in Chapter VI. The lake and its surroundings offer an excellent opportunity for interpretation and the development of an interpretive center. Interpretive themes might deal with energy supply, sustainable resources management and other topics on environmental awareness, such as recycling. An interpretive trail might be linked to a recreational area with a picnic shelter and a canoe landing. CP&L has expressed an interest in such uses of the area, and further discussions should take place concerning the development and management of such facilities.

No areas in Section 4 are recommended for state park land acquisition. No buffer is recommended for the section of the river through the city limits of Lumberton because the shoreline is highly developed. Appropriate measures for river corridor protection within the city limits as well as protection of the geological site near Highway 72 should continue to be the responsibility of the city of Lumberton.

Section 5

Section 5 is 19.3 miles long. It begins just below the CP&L Lake at the confluence of the river with Jacob Branch and extends beyond the U.S. 74 intersection at Boardman to the southern end of Pea Ridge (Figure V-11). Section 5 is the beginning of the section of the river designated *natural.* Compared to the upper sections of the river, this area has limited road access. It received a very high

rating for its scenic value, with the portion past Piney Island and through the Net Hole receiving the highest rating of any segment of the river by the Lumber River State Park and State River Citizens Advisory Committee (Table IV-2). There are five locations having particular recreational significance: the S.R. 2123 intersection; the S.R. 2121 intersection; Piney Island; the U.S. 74 intersection; and Pea Ridge.

Section 5 is, in many ways, the most interesting, diverse and complex area along the entire river corridor. It includes three important Natural Heritage Priority Areas that are representative of the floodplain habitat and contain rare and endangered species: Lower Buck Landing, Piney Island Swamp and Net Hole Swamp. Net Hole Swamp is ranked second in importance of the Lumber River Natural Heritage Priority Areas, while Lower Buck Landing and Piney Island are ranked eleventh and twelfth, respectively. The *natural* character of this area offers excellent opportunities for wilderness-type recreation, interpretation and scientific study. Two areas within Section 5 have been or are in the process of being acquired by the Division of Parks and Recreation: Piney Island (537 acres) and the Net Hole area and part of Lower Buck Landing Swamp (1,570 acres). In addition, the Lumber River Conservancy owns 190 acres that may be available for additional state park expansion at a future date. In order to maintain the integrity of the river's *natural* designation, development in this section will emphasize passive, resource-based activities such as canoe camping, fishing and nature study. If there is an expressed desire for other kinds of recreation activities, however, such as boating and picnicking, these will be accommodated where the land is available and suitable for such without loss of environmental quality.

A canoe campsite is needed near the beginning of this section in order to provide overnight camping within a day's paddle from the last proposed campsite, McMillan Beach, or another nearby site in Lumberton. This site should be identified and developed near R.M. 75 as a part of Phase III.

The Lumber River Conservancy currently owns 190 acres on the eastern side of the river at R.M. 75. With its ownership, the Conservancy protects about 2.3 miles on one side of the river. The Lumber River Conservancy has indicated its intention to donate the 190 acres, consisting predominately of wetlands, to the state at an appropriate time.

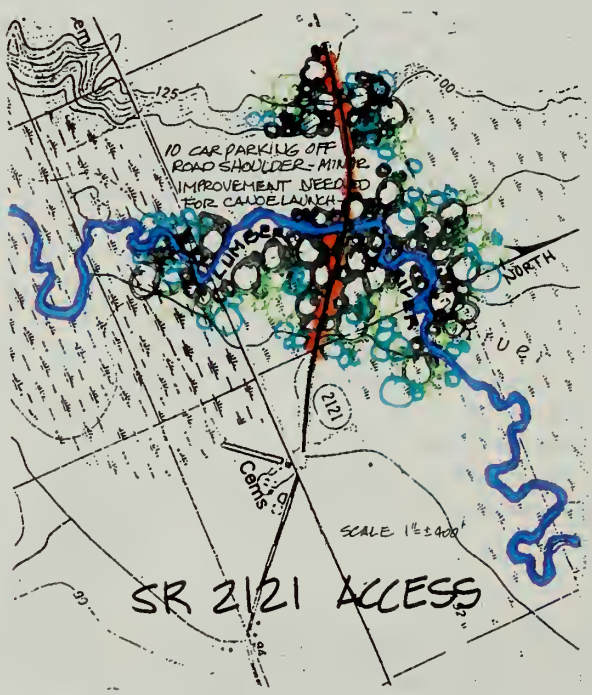

Figure V-12. SR 2121 Access

There is an informal boating access at the S.R. 2123 intersection at Matthew Bluff. S.R. 2123 is unpaved, and the area is rural in nature. The bridge is relatively low and can be a danger to boaters, especially after prolonged periods of rain. Informal use will continue at this access point. After establishment of the state park, discussions with the N.C. Department of Transportation and local landowners should be held to determine the best use of this site.

There is a canoe landing in the southeast quadrant at the S.R. 2121 intersection (Figure V-12) at Burnt Island. It is at the northern tip of the Lower Buck Landing Natural Community. The S.R. 2121 access is 13.4 miles from the WRC access at the N.C. 72 intersection. Continued existence and improvement of this river access point is needed, particularly for users who either live near the lower portion of the river or prefer to canoe the river from this point.

Park property at the area known as Piney Island links three important Natural Heritage Priority Areas: Lower Buck Landing Swamp, Piney Island Swamp and Net Hole Swamp. An access road leading into Piney Island off N.C. 72 can be used for maintenance. There are five areas of high ground ranging in size from 1.5 to 16 acres at Piney Island that are linked by existing unpaved roads. The area has potential for development of a nature/interpretive trail with boardwalks. The trail may include the three Natural Heritage Priority Areas, a xeric plant community that exists close to the property entrance, parts of the swamp, and the high points that give Piney Island its name. The Piney Island landing is also a traditional rest stop for canoeists and would be an ideal location for a canoe campground. The area is over 12 miles from the last proposed campground site. Five campsites and trails are recommended for development. Some improvement to the road leading to the primitive camp area will be required for maintenance purposes (Figure V-3).

The Net Hole area, located above Boardman, has its center at the confluence of Big Swamp Canal with the river. It is characterized by a number of channels, man-made and natural, that link in a drainage network. It represents an area of biologic, scenic and historical significance with strong interpretive elements and has a rich history as a forestry center. The Net Hole area is the site of the old Butters Lumber Company sawmill, one of the largest sawmills in the Southeast in its heyday. Currently, this area is being negotiated for acquisition as state park land.

At the U.S. 74 intersection at Boardman, there is a widely used canoe landing that will be relocated as a result of the expansion of this highway. This landing will be moved to the northern extremity of the park at Pea Ridge, and it will continue to serve users on a 24-hour basis daily. It can also serve as the starting point for short canoe trips for visitors to the Ridge Park area.

Pea Ridge is an area of high ground adjoining the river (Figure V-13). State Road 2245, off U.S. 74, is the only access route into the Pea Ridge area, and it ends in a loop at the southern end of the ridge. The total area of Pea Ridge, including swampland and a buffer across the river on the eastern side, is approximately 430 acres, with high ground occupying about 320 acres of this. Approximately half the land area is relatively flat and used for agricultural production, but the remainder of the property consists

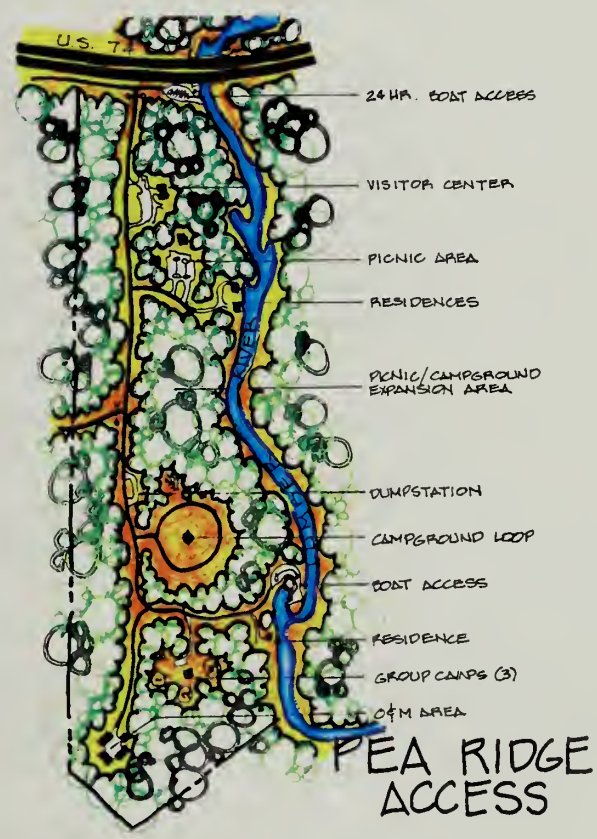

Figure V-13. Pea Ridge Access

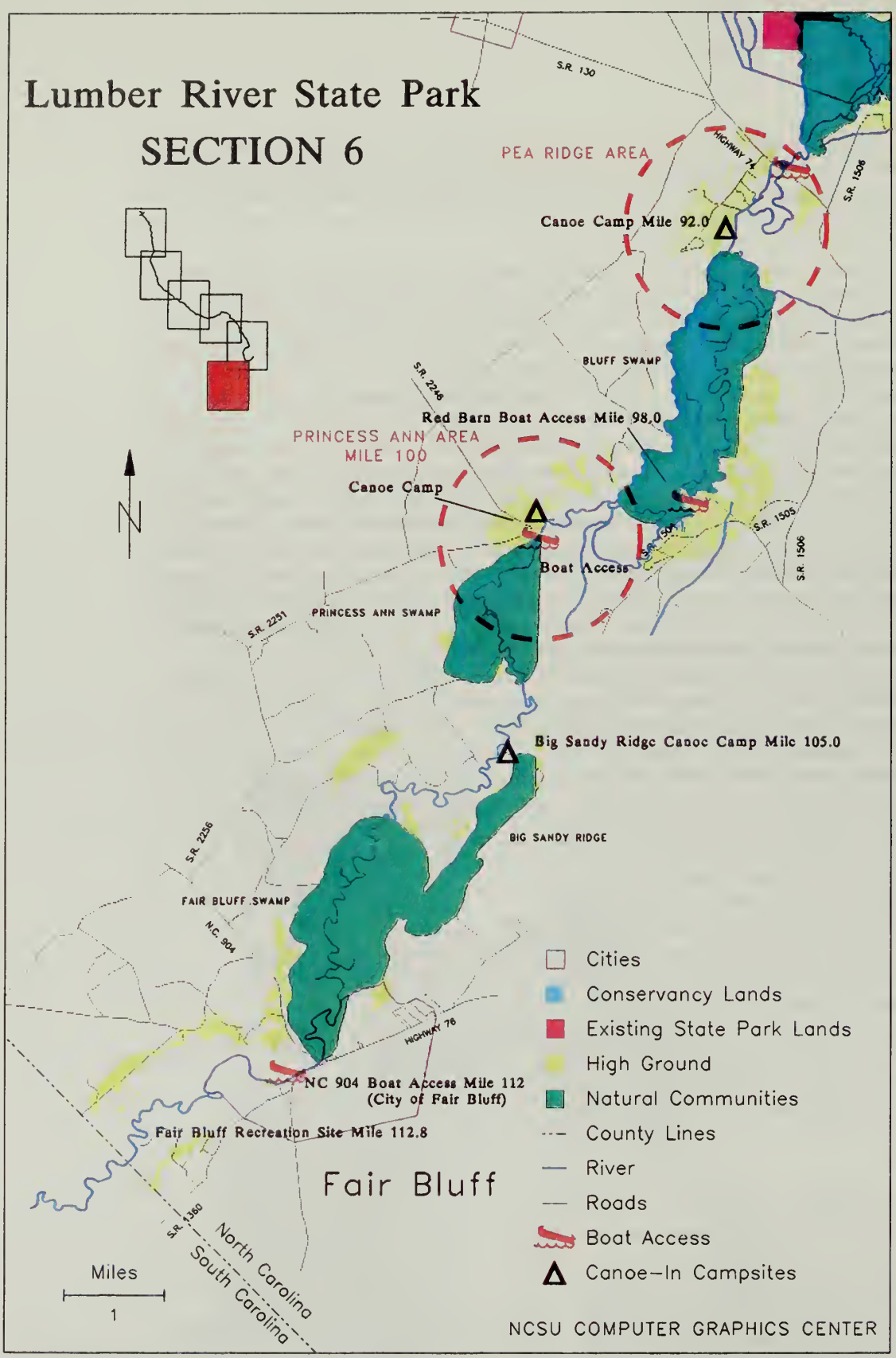

Figure V-14. Section 6

of undulating land under forest cover, particularly towards the southern end of the ridge.

It is recommended that the southern or main park headquarters be located on Pea Ridge. This facility will be on a larger scale, though similar to that in the north. Development will include a canoe/boat landing, picnicking for groups and families, family and canoe camping, a visitor center, office, auditorium, maintenance headquarters, staff residences, parking and utilities. The campground will serve as an alternative site for canoeists who prefer a longer float and wish to move past the Piney Island canoe campground. A small amphitheater for education and interpretation might be included in the development plan. A trail system including boardwalks can be constructed to link the three Natural Heritage Priority Areas adjoining this area. Appropriate parking and sanitary facilities at the visitor center and camping areas will complement recreational development. There are approximately 10 buildings at Pea Ridge in varying condition; some of these may be able to serve as residences and other park structures. The planned expansion of U.S. 74 will allow for easier access to the area as well as bring in a larger flow of potential recreators and tourists, particularly off I-95.

Three of the Natural Heritage Priority Areas containing unique plants and animals have been identified in this area and are included in the N.C. Natural Heritage Program's inventory. The community adjoining the northern end of Piney Island is known as Lower Buck Landing Swamp and covers approximately 530 acres; it is ranked eleventh of the Lumber River Natural Heritage Priority Areas and is a good example of an extensive floodplain with a healthy population of the rare plant Carolina bogmint (*Macbridea caroliniana*). The community in the middle is the Piney Island Swamp, which is ranked twelfth and occupies approximately 204 acres. Piney Island Swamp is also a good example of an extensive floodplain and also supports a healthy population of Carolina bogmint. Contiguous with this is the third community at the southern end of Piney Island. It is known as Net Hole Swamp and covers about 837 acres; it is ranked second in importance, since it is an outstanding example of a river floodplain with an extensive association of Cypress-Gum Swamp as well as excellent wildlife habitat along the river.

The buffer recommended for state park acquisition in Section 5 will consist of those sections not protected by acquisition of the Natural Heritage Priority Areas or other park lands. They will include a segment of the river from its confluence with Jacob Branch to the Lumber River Conservancy (L.R.C.) lands (2.2 miles and 90 acres); the Lumber River Conservancy land (190 acres), expected to be acquired by donation; a segment of the river west of the L.R.C. lands (2.3 miles and 45 acres); and a segment from the lower end of the L.R.C. lands to the beginning of the Lower Buck Landing Swamp Natural Community at S.R. 2121 on Burnt Island (5.4 miles and 220 acres). Acquisition of this buffer is to take place in Phase III. Buffer acquisition is also needed for a segment east of the river at Piney Island between the Lower Buck Landing Swamp and the Piney Island Swamp Natural Heritage Priority Areas (0.8 mile and 50 acres); and a segment between the Net Hole Swamp natural community and the Pea Ridge area (0.2 mile and 30 acres), scheduled for Phase I.

Matthew Bluff is an outstanding geo-morphological feature in this section of the river. Acquiring the recommended river buffer will protect this resource.

In addition to the 537 acres already acquired as part of Phase I at Piney Island, it is recommended that a minimum of 2,232 acres be acquired within Section 5. The 2,232 acres consist of approximately 435 acres for buffer, approximately 530 acres for biologic conservation at Lower Buck Landing Swamp, 837 acres for biological conservation at the Net Hold Swamp, and about 430 acres for the park headquarters at Pea Ridge.

Acquisition of this proposed acreage by the state would provide river corridor protection for all 19.3 miles of river of Section 5, provide land for recreational development, and protect significant Natural Heritage Priority Areas and scenic resources. Land from Jacob's Branch to S.R. 2121 is proposed for acquisition under Phase III. Acreage downstream of S.R. 2121 is proposed for acquisition under Phase I.

Section 6

Considered one of the most beautiful parts of the river by many canoeists, Section 6 is 23.3 miles long; it begins downstream from the U.S. 74 bridge crossing at the southern tip of Pea Ridge

and extends south of Fair Bluff to the North Carolina-South Carolina state line (Figure V-14). Access to this section is limited. N.C. 904 crosses the river at Fair Bluff, 21.1 miles downstream from U.S. 74. State roads 2246 and 2247 run close to the river at the Princess Ann area on the western embankment. S.R. 1504 runs close to the eastern embankment across and upstream from Princess Ann. Section 6 is a continuation of the *natural* river designation, with the exception of a segment running through the Fair Bluff city limits classified as *recreational*. This section has high to very high scenic ratings (Table IV-2). There are four Natural Heritage Priority Areas in this section: Bluff Swamp; Princess Ann Swamp; Big Sandy Ridge; and Fair Bluff Swamp. Two sites of geological importance are found in this section as well: the bluff at Princess Ann and the outcrop on the east bank of the river at Fair Bluff. There are five areas of particular recreational significance: Red Barn; Princess Ann; Big Sandy Ridge; N.C. 904 intersection; and an area downstream from Fair Bluff. Development in this section, which is designated *natural*, should be restricted, and park development should not be intrusive. Any development in this area will have to take place largely away from the river itself or in already disturbed areas.

The first canoe/boat landing area is at Red Barn and has traditionally been used by canoeists. No improvements are suggested for this area. It should continue to function under the present ownership, but its use should be monitored to ensure no negative impacts on the resource.

An area of approximately 100 acres is being pursued for acquisition at Princess Ann (R.M. 100.3). This is a picturesque area with an outstanding high bluff of geological significance, a reverse flow area (Griffin Whirl), and a sharp bend in the river that opens up a long, straight vista that lends relief to the floodplain landscape (Figure V-15). The Princess Ann area is located on the western side of the river and is accessible by S.R. 2245 and S.R. 2246. Access is convenient for persons living or travelling in western Robeson county. Popular activities here are swimming and fishing. It is also used as a canoe/boat launch area. The area being acquired will be available for limited development. Recommended here are a picnic area, a family/canoe campground, restroom facilities, boat access, a small park office, and a parking lot.

Further downstream is the Big Sandy Ridge Natural Heritage Priority Area, recommended for acquisition under Phase II. This area is a potential location for a trail system that could be used for hiking and backpacking. It also offers the potential to locate another primitive canoe camp. Following implementation of Phase I and Phase II, an assessment of the demand for another canoe campsite should be made.

The intersection of the river at N.C. 904 is at the southern end of the Fair Bluff Swamp. N.C. 904 marks the southernmost intersection of a road with the river within North Carolina. There is an informal canoe access at this intersection that complements proposed state park areas, and it may be improved. Management should be a local responsibility undertaken by the city of Fair Bluff, local canoe clubs, or the county.

An area south of the N.C. 904 intersection in Fair Bluff on a high area of land (R.M. 112.8) offers potential for serving both the local citizenry and overnight river users, either as a state-operated facility or a city park. As the Lumber River State Park develops, this area should be studied to determine its best use and developed accordingly as a part of Phase III. The state will need to discuss acquisition, development and management of this area with the town of Fair Bluff. In addition, discussions need to be held and details worked out with the state of South Carolina about its provision of recreational facilities and the safety of river users coming down from North Carolina.

Four Natural Heritage Priority Areas are in this section of the river floodplain as identified in the N.C. Natural Heritage Program Inventory of the Lumber River. Bluff Swamp (about 1268 acres) is a high quality representation of the floodplain habitat with good examples of Sand and Mud Bar, Coastal Plain Levee Forest, Bottomland Hardwoods, and Cypress-Gum Swamp; it is ranked tenth in priority. Princess Ann Swamp (about 680 acres) has similar significance to Bluff Swamp and is ranked fourth. Big Sandy Ridge (about 376 acres) contains a population of the unique plant *Chrysoma pauciflosculosa* and is ranked eighth. Fair Bluff Swamp (about 1178 acres) is a good example of Swamp Forest with excellent wildlife habitat, and it contains a population of *Cuplea viscosissima*, which is a new species for the North Carolina Coastal Plain; it is ranked seventh. All of these Natural Heritage

Priority Areas are recommended for acquisition in Phase II except for the Bluff Swamp, to be acquired in Phase I. Each has high ground that can be used for recreational development, although such use should not conflict with the primary goal of these Natural Heritage Priority Areas, which is conservation.

The buffer required in Section 6 will consist of those sections not protected by acquisition of the Natural Heritage Priority Areas or other park lands. The buffer to be acquired will include a segment between the Bluff Swamp natural community and the Princess Ann area (1.0 mile in Phase I) and a segment between the Princess Ann Swamp and the Fair Bluff Swamp Natural Heritage Priority Areas (4.5 miles in Phase II). A 3.5-mile segment may be acquired under Phase III.

A geologically important site exists as a 5-foot outcrop of the Black Creek Formation on the left bank of the river across from the boat ramp at Fair Bluff. It consists of a dark grey micaceous clay and sandy clay with abundant lignite. Sulphur blooms occur on bedding surfaces, and some mollusk fossils are found here. This area should be protected in the land acquired for the Fair Bluff Swamp.

In addition to the approximately 100 acres being acquired at Princess Ann, another approximately 3,872 acres are recommended for state park acquisition in Section 6. The river buffer segments will require 370 acres; these exclude the areas covered by the Natural Heritage Priority Areas and the *recreational* part of the river through Fair Bluff. The areas for biologic conservation of Natural Heritage Priority Areas will require 3,502 acres. Acreage needed for recreational development at Big Sandy Ridge and the Fair Bluff site will be determined after the completion of Phases I and II.

Completing this acquisition would permanently protect all of the river corridor along Section 6 except for the portion within Fair Bluff. It would also provide land for recreational development, and protect significant Natural Heritage Priority Areas and scenic resources.

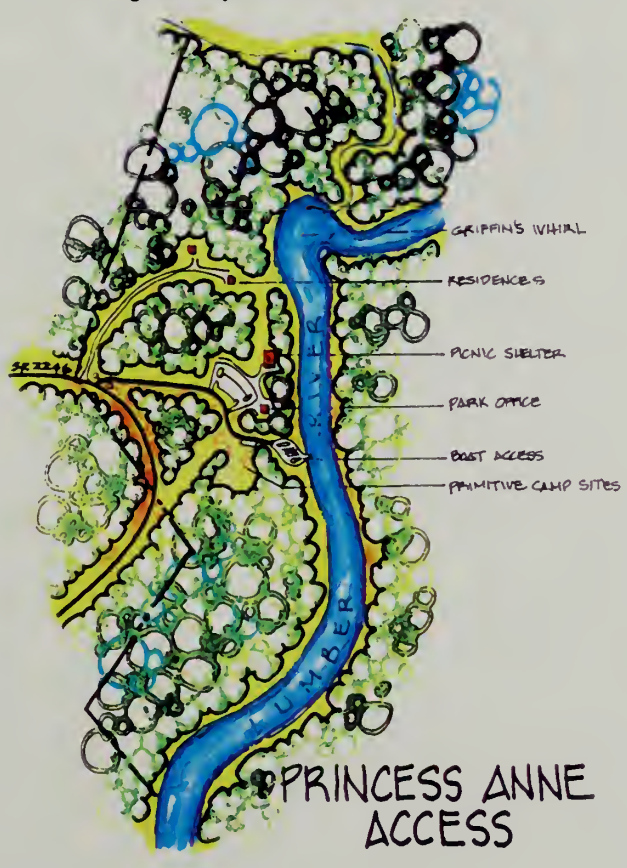

Figure V-15. Princess Anne Access

VI. Management

The Lumber River is serpentine for its 115 miles, with the sites identified for management and development scattered along the length of the river. The park therefore has characteristics peculiar to other such state and national river parks.

It will be managed as two units within the park. The two park headquarters, each with a complex of living quarters, office and maintenance shop, are to be located at Chalk Banks and Pea Ridge. Staff at either headquarters will not have to travel more than 35 miles by road either north or south to carry out administrative, management, maintenance, program, natural resource protection, and other responsibilities. The primary jurisdiction of the north headquarters should be between the intersection of the river at S.R. 1412/1203 (Turnpike Bridge) to Back Swamp. The primary jurisdiction of the south headquarters should be from the Jacob Branch confluence to the state line with South Carolina. It is recommended that the Wildlife Resources Commission continue to operate the three Wildlife Resources Commission boating access areas, and that the cities of Lumberton and Fair Bluff manage the river corridor within their jurisdictions. Where certain areas on private lands will serve a public recreational function (the CP&L Weatherspoon site and the J.P. Stephens access area, for example), the Division of Parks and Recreation should consult with private landowners so the best uses of these sites are made.

Management Mandate

The Lumber River Legislation directs the North Carolina Division of Parks and Recreation to prepare a general management plan and a master plan for the Lumber River State Park that provides for state and local government protection of the river. In keeping with this directive, the master plan for the Lumber River State Park includes both state-managed areas and other areas to be controlled by private landowners and by local governments.

This master plan acknowledges the need for state and local government agencies to work together and with private landowners to protect the river corridor. For example, the Wildlife Resources Commission will continue to manage the Sandhills Game Lands at the S.R. 1412 intersection and the three Wildlife access areas. Private landowners may be willing to enter into agreements to protect their lands through such measures as conservation easements. The city of Lumberton will continue to manage city parks and greenway areas along the river as it flows through Lumberton.

Implicit in such a cooperative arrangement is the need to have a park advisory committee to support and guide the administration of the park. All recommendations for acquisition and management are given in Chapter V. The master plan will be implemented in three phases. The recommendations for staffing, land acquisition and development are outlined in Chapter VII.

Administrative Centers

As discussed in Chapter V, the river will be divided into two major management units, each containing a park headquarters. The south headquarters at Pea Ridge will be the major park headquarters. The park superintendent IV will be located here, while the park superintendent I will be located in the northern part of the river at the Chalk Banks development area. Each will have park rangers and maintenance personnel in keeping with the standards of the Division of Park and Recreation.

Staffing

Park staff should include a park superintendent IV, park superintendent I, park rangers, maintenance crew and clerical staff. Seasonal staff will be employed during the summer months. Staff responsibilities include maintenance, interpretation and education, natural resource management, search and rescue, law enforcement, first aid treatment, visitor management, and research. Volunteers should

supplement the staff where possible. The Lumber River State Park and State River Advisory Committee or some other management committee or task force may give advice and support to the staff and to the Division of Parks and Recreation. Park staff should be increased as land acquisition and facility development proceed through the three recommended phases of the plan.

Visitor Management

The park will be managed according to existing state park policy and procedures. These standards and procedures will address concerns for resource protection, visitor safety and enjoyment, and public relations, as well as vandalism and other enforcement matters.

Recreational capacity studies should be developed for the park when it becomes operational. These studies on projected uses will determine the effects of increased visitor use on the natural resources and the visitor experience. Location of attractions, access, and number of persons, vehicles and canoes using the park will all be taken into consideration in the studies. Also important are time and distance studies on an hourly, daily and seasonal basis for duration of stay at a particular site or facility, and distance covered on a trail or in a canoe.

Revenue Management

The most important management goal for the park is maintaining its natural and scenic qualities; recreation will play an important but secondary role. Bearing this in mind, it is unlikely the park will generate sufficient revenue to offset management costs. Revenue would come from sales at the visitor center/museum and, possibly, from canoe and boat rentals, camping fees, and food concession operations. Fees for use of recreational facilities, as currently practiced in state parks, may also be implemented at some future time for full or partial support of operational costs.

If demand consistently exceeds supply, a rationing system may have to be applied. Some mechanisms of rationing that can be applied include fees and charges, queuing (first come, first served), reservations, and lotteries (Shelby and Heberlein, 1986). Revenue through direct fees and charges to the public is not recommended; rather, revenue can be gained indirectly from concessionaire operations and contract fees payable to the park system as practiced currently in some state parks. A combination of reservation and fee systems may be used for campground and picnic shelter use.

Maintenance Management

The goal of park maintenance is to ensure that the quality of the river environment and the ecological integrity of the river are not degraded. As much as possible, the natural quality of the river ecosystem should be guaranteed, and recreational pursuits must be compatible with that ideal. It is recommended that a maintenance headquarters be developed in the northern section of the river in the Chalk Banks area and another in the southern section on Pea Ridge. Their jurisdictional limits will be the city limits of Lumberton and will not include the city itself. Maintenance operations will include clean-up, incidental clearing on the river itself, and other routine maintenance responsibilities. Water trips for maintenance purposes will also be necessary on a periodic basis. Land trips can be made for more intensive maintenance on a more regular basis. These activities will be supervised by the area ranger staff in their respective jurisdictions. Such operations can be combined with park patrol duties for interpretation, resource and visitor management purposes.

Interpretation/Education

The Lumber River offers a variety of interpretive and educational opportunities. Historical, cultural, biological, geological, archaeological and paleontological themes that are consonant with state park policy can be developed, particularly in conjunction with schools, to take advantage of those opportunities.

Historical-Cultural Interpretation

The history of the peoples who lived along the banks of the Lumber River prior to the last three centuries is shrouded in tradition, legend and myth. Their origins date back possibly 20,000 years into the period of pre-history. Written accounts, however, do not begin until early Colonial times. Noteworthy works by Dial and Eliades (1975), Stanley Knick (1988), and other books, pamphlets and articles on American Indian history, folklore, religion, and culture, together with manuscripts and public records of North Carolina, are useful sources or information for historical, archaeological and cultural interpretation.

A campfire in the forest or along the river is the perfect setting for an evening of historical-cultural interpretation. The telling of folk tales associated with the river, its peoples, other Native American tribes outside of the region, and those brought by European colonists would be enjoyed by children visiting the park.

Another form of interpretation that would be enjoyed by children is participation in play activities of Native American origin, some of which have influenced a variety of modern American sports and games. Native American games, although a source of amusement and creativity, were also used to prepare children for adulthood. The program can be extended to interpretation of modern games and outdoor recreational activities that had their origins in Native American culture, such as lacrosse and canoeing (Oxendine, 1988).

Dr. John D. Neville's pamphlets (1984) on Indian culture 400 years ago are a valuable and ready resource for the park interpreter. They cover Native American religion, dress and ornaments, food and cooking, and canoes. Learning about these aspects of Indian culture in the period of America's pre-history would be an interesting educational experience for park visitors.

The early period of history brought new influences to bear on the lives of Native Americans, affecting methods and implements of farming, hunting and fishing. Live demonstrations of these and of period arts and crafts may be possible as part of the park's interpretive program.

Each county has conducted studies of the towns that were once on or near the river's banks. Industries developed, flourished for a time, and eventually died in these towns. A good example of this was the saw mill in the Net Hole area near the town of Boardman. Boardman grew up around the Butters Lumber Company, which was reputed to be the fourth largest lumber company in the South. Lumberton, Pembroke and Black Ankle have their own interesting histories as well.

Nature (Biological) Interpretation

The Lumber River is important as a unique blackwater river in North Carolina. It and its forests offer a marvelous opportunity for nature interpretation. Interpretive programs can explore the fields of biology and limnology, which reveal the variety and diversity of biota from tiny one-celled amoeba to towering pines and cypress. Many classes of invertebrates and vertebrates (mammals, birds, reptiles, amphibians and fish) in all stages of their life history can be found in the river ecosystem.

The Natural Heritage Priority Areas identified in this plan for either state park ownership or management by other agencies will be outdoor classrooms and laboratories for interpretation and scientific education and research.

Archaeological and Paleontological Interpretation

We rely on archaeologic and paleontologic discovery and study to unravel the mysteries of prehistoric peoples and events. Evidence of Native and later American lifestyles is found in artifacts dating from 20,000 B.C. to the present. Artifacts and fossils are important elements of a state park's interpretive program. Further, they are appropriate elements by which to teach geographic and geomorphological phenomena, such as sedimentation and uplift, as they relate to the Coastal Plain and the Lumber River.

Natural Resource Management

The most important natural resource in the Lumber River State Park is, of course, the river. It is classified as A-II or C-Swamp in different sections within Robeson County. Water quality meets the standards required for Class "C" waters as established by the North Carolina Environmental Management Commission. Class "C" is a criterion for inclusion as a Natural and Scenic River. The unique environments and ecosystems of the river are dependent upon this resource. All other natural resources of the river basin are bound inextricably to the water.

Water Flow and Quality

Water quality can be affected by both natural and human factors. Flood and drought are two natural phenomena of concern. Floods can bring pollutants from activities occurring outside the immediate river floodplain. Drought can cause low stream-flow, which creates anaerobic conditions in the river and results in its inability to carry away or dilute industrial and municipal wastes. Even organic matter from the swamp and forest environment can contribute to increased concentrations of contaminants that threaten aquatic life and the rest of the food-web. Fortunately, extraordinary flooding and drought are rare occurrences for the Lumber River.

The general water quality is Class "C," the standard required for designation of the river within the Natural and Scenic Rivers System. Certain current activities involving the river or its basin could have an affect on the flow and quality of the water, however. In this regard, the water withdrawals for agricultural irrigation, municipal and industrial uses need to be monitored as part of an ongoing research program. Since the regularity of flow of the river depends upon replenishment by precipitation, water withdrawals from the river have to be done with greater caution. Cities, towns and industries, as they expand, must not view the river as an inexhaustible source of water. Every effort should be made to create new methods of use that are grounded in efficiency and effectiveness. Wherever discharges are being made into the river, it is absolutely necessary to upgrade the techniques and facilities that treat these discharges as well as to enforce the regulations and laws to ensure compliance.

There are small water withdrawals for agricultural irrigation scattered along the river. In addition, the city of Lumberton removes water from the river at the rate of nine cubic feet per second (cfs). Most of this water, however, is treated and returned to the river. Carolina Power and Light Company's Weatherspoon Steam Station withdraws water at the rate of 11 cfs. Some of this is returned to the river after it is cooled in an adjoining lake. Withdrawals have not yet significantly affected the river's ecology.

The water returned to the river after use by Lumberton has reduced water quality. There is concern with effects of the stream flow downstream of the power plant during periods of unusual low flow caused by extreme dry conditions. The lowest flow recorded was during a period of seven consecutive days when it was 14 cfs. Since the CP&L steam station uses a maximum of 11 cfs, there may or may not be a significant impact not attributable to natural climatic phenomena. More study is required in this area. A major concern in the northern extremities of the park is with the water withdrawals from the Pinehurst-Southern Pines area. Observations have shown that the flow of water has been significantly affected, especially on weekends when local tourist activity is at its peak. Activity by the Laurinburg-Maxton Waste Water Treatment Plant can, by virtue of its location near the river's northern terminus, affect much of the river. Studies by the Division of Environmental Management, however, have not revealed any adverse effects.

Concerns have been expressed about development, pollution and complete deforestation of these significant blackwater swamp forests. There is a serious threat of widespread forest degradation in the watersheds of the river. This threat is real because most of these lands are privately owned and can be harvested by the owner or his agent. In actuality, 73 percent of all harvested timber comes from non-industrial, privately owned forests (Johnson, T.G., 1990). In addition, more than 50 percent of the area within a one-mile buffer (half-mile on either side) is swamp forest, which is more fragile than drier areas. Loss of swamplands in the river basin is the beginning of environmental degradation, ranging from loss of aesthetics to catastrophic effects on stream flow and quality. Cooperative ar-

rangements among the state, landowners and loggers will be necessary to reduce any undesirable effects.

The application of performance standards outlined in the Forest Practices Guidelines Related to Water Quality extracted from *Best Management Practices for Forestry in the Wetlands of North Carolina* would minimize soil erosion and stream sedimentation. These standards are mandatory. The issues addressed are: streamside management zones (SMZ); prohibition of debris entering streams and water-bodies; access road and skid trail stream crossings; access road entrances; prohibition of waste entering streams; water-bodies and groundwater; pesticide application; fertilizer application; stream temperature; and rehabilitation of project sites. Of particular relevance is the recommended SMZ of 50 feet for areas with 0-5 percent slopes, into which category the Lumber River falls. This SMZ of 50 feet does not meet the standard recommended for the river in this plan, which is a minimum of 250 feet from either bank. This buffer will not be continuous; it will exclude sections of the river through the city limits of Lumberton and Fair Bluff (designated as *recreational*), for example. It will be included in those areas of state and cooperative management for park development and for conservation of the 11 Natural Heritage Priority Areas.

Clearly, no buffer can alleviate losses of water and visual quality; there must be additional specific management prescriptions for timber harvesting, varying from selective strip cutting to block harvesting, with immediate reforestation. Until property interests in riparian lands are purchased, donated, or regulated by local governments, however, the buffer and other lands are subject to logging and are protected only through the cooperation of private landowners. While the Division of Parks and Recreation does not in any way regulate forestry practices, the Division should work with private landowners, timber companies, and the Division of Forest Resources to protect the river corridor. A buffer along the river is needed, and no harvesting should take place in the buffer.

State laws provide local governments with the authority to make land use regulations, including those related to floodplains. It is recommended that every possible means be used to ensure that conservation techniques and applications are used that will not in any way affect the river ecosystem or its biological, recreational, geological, cultural, scenic and other values. The primeval nature of the swamp forest ecosystem that characterizes the Lumber River must be sustained. The best management practice is to allow nature and natural processes to function within the suggested buffer area.

The Water Supply/Watershed Protection Rules direct local governments to adopt relevant ordinances by July 1993 for municipalities with populations greater than 5000, by October 1993 for municipalities of less than 5000, and by January 1994 for all counties. The state should, therefore, work closely with those municipalities (including Lumberton, Pembroke, Laurinburg, Maxton, Wagram, Boardman and Fair Bluff) and the counties that fall within the Lumber River basin in developing appropriate regulations. These regulations should address protecting the characteristics that make this river unique.

Flora

The swamp and floodplain ecosystems are home to distinct vegetation communities. These have been identified in this plan as forest communities and significant natural plant communities. The 12 natural plant communities are areas of rare and unique vegetation, 11 of which are recommended for protection. Both forest and unique plant zones need to conserved. The forests must not be exploited without a proper forest management plan that addresses reforestation and harvesting concerns. The natural plant communities must be either acquired or protected through the passage of appropriate land planning policies that will ensure their protection.

Fauna

This plan has indicated the variety of invertebrate and vertebrate life that inhabits the entire river ecosystem. Common North Carolina wildlife species are found here; among these are deer, raccoon, beaver, turkey, ducks and hawks. There are rare and endangered species, such as the alligator, the red-cockaded woodpecker, the Cape Fear chub, the giant yucca skipper and the pine barrens

tree frog. There is concern about species that were once common and are now rare, such as bear and blue heron. Where species have become rare, they should be preserved or re-introduced; where they are common they need to be conserved. These conservation measures may mean some loss of hunting privileges in the recommended buffer zone along the banks of the river. It may also necessitate cooperative management between the state and landowners of forest cutting practices not just in the buffer, but in the surrounding forests as well.

Fallen Trees

Aerial and field reconnaissance revealed sections of the river where fallen trees were an impediment to such activities as canoeing. Trees falling across the river are a natural occurrence, however. Hurricanes and ice storms also cause considerable tree falls, but this, too, is part of the river's natural processes. The fallen trees die and lie across the river, but not with enough frequency and intensity to create permanent dams. Their presence is beneficial to wildlife, especially fish, as this provides habitat variety for reproductive activities, for cover and escape from predators and for primary food sources.

Although fallen trees are a hindrance to recreational pursuits, such as canoeing and boat fishing, any clearing and snagging should be kept to a minimum. It is recommended that passageways of approximately six feet in width continue to be cleared where fallen trees are an insurmountable barrier to boating. Such a path would be optimal for small watercraft without damage to person or equipment. The Wildlife Resources Commission has cleared a canoe path on the river and should continue to do so as necessary. All clearing and snagging should be done at times of medium to low water, and at no time should fallen trees, or sections cut from them, be removed from the river.


PAYNE

VII. Action Plan

The action plan for land acquisition, development and staffing of the Lumber River State Park will be in three phases. The phasing process will be guided by the relevant designation of the river. Phase I will deal with 17.2 miles of the section of the river designated as *natural*; Phase II will deal largely with the remainder of the *natural* section and also high priority *scenic* sections; and Phase III will deal with those areas not addressed in the other phases (Figure VII-1). Phasing will, of course, be dependent upon resources allocated for park land acquisition, capital improvements, and operations. Due to land use activities that might result in negative impacts on potential park lands, the land acquisition program may need to move more rapidly. It may even be necessary, in the event of an exigency, to deviate from the phased plan, particularly where public interest or resource protection so dictates. Specific details are given on number and classification of employees, the actual acreage recommended, and the kind and quantity of recreational facilities.

Staffing

The total number of full-time staff needed will be 23. Hiring should be phased to coincide with proposed park acquisition and development (Table VII-1). Positions needed are one park superintendent IV, one park superintendent I, five park rangers, one resource management specialist, two clerk-typists, and 13 maintenance workers.

Table VII-1. Park Staffing Plan

Phase	Main Headquarters (South)	Secondary Headquarters (North)
I	Park Superintendent IV Park Ranger III Park Ranger I Maintenance Mechanic IV General Utility Worker Clerk Typist III	
II	Park Ranger I Resource Management Specialist 2 Maintenance Mechanics III 2 General Utility Workers	Park Superintendent I Park Ranger III Park Ranger I Clerk Typist III Maintenance Mechanic IV Maintenance Mechanic III 3 General Utility Workers
III	Maintenance Mechanic I	Maintenance Mechanic I

Land Acquisition

Developing and managing Lumber River State Park access areas and canoe camps will require fee-simple ownership of the property by the state of North Carolina. Protecting and managing Natural Heritage Priority Areas and buffer land may be done through fee-simple ownership, less-than-fee-simple estates such as conservation easements, or management agreements, depending upon the level of protection and management required. The acquisition of fee-simple or lesser estates may be done by donation, bargain sale, or purchase.

Land will be acquired in order to: (1) protect the river corridor by acquiring buffer along the river between access areas and Natural Heritage Priority Areas recommended for acquisition (about 1,205 acres); (2) protect eight Natural Heritage Priority Areas (about 6,022 acres); and (3) obtain five

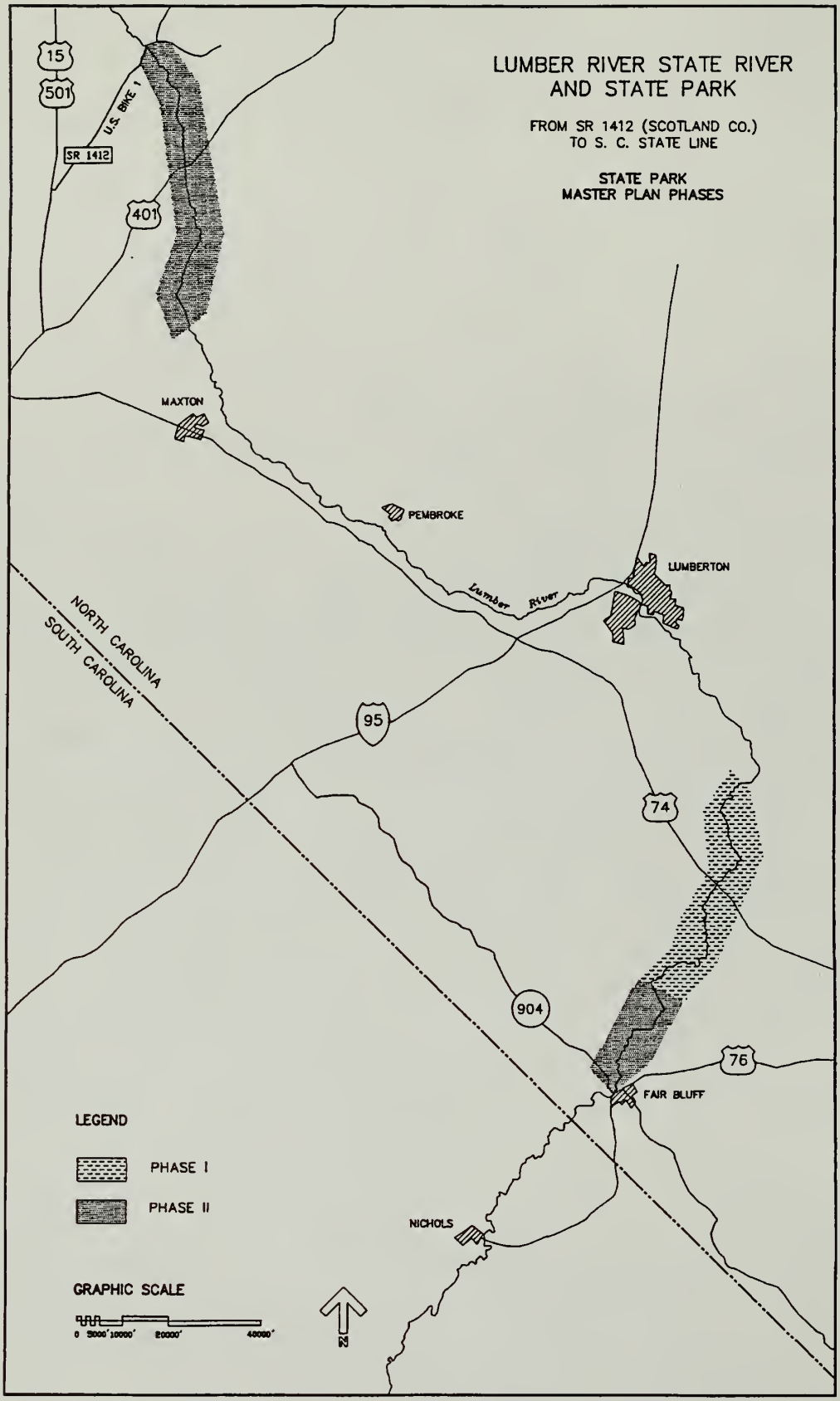

Figure VII-1. State Park Master Plan Phases

areas recommended for facility development (about 1,060 acres). These objectives are shown in Table VII-2 (next page). The total area recommended for state ownership in Phase I and Phase II is 7,787 acres. Acreage needs for Phase III will be determined following Phase I and II.

Land Acquired or to be Acquired in the Near Future

Approximately 2,207 acres in three areas have been acquired or will be acquired in the near future by the state of North Carolina. The Piney Island Natural Heritage Priority Area (537 acres) has been acquired. The Net Hole Natural Heritage Priority Area and part of the Lower Buck Landing Swamp (1,570 acres) and Princess Ann Access Area (100 acres) are in the process of being acquired. The Net Hole is being acquired prior to the completion of the master plan because it is highly scenic and highly significant biologically. The Princess Ann Access Area is being acquired because of its high scenic qualities, its suitability to small-scale development for public access to the river, and the threat of incompatible development in the area.

Acquisition of River Corridor Buffer

The Lumber River Natural and Scenic River Designation report (Division of Parks and Recreation, 1989) discusses a buffer zone along both banks of the river. Such a buffer zone would provide protection to the scenic qualities of the corridor and the water quality of the river. A buffer should be no less than 250 feet from each bank, with a preferred minimum width of 400 feet in areas not identified as Natural Heritage Priority Area acquisition or state park access area acquisition. Approximately 705 acres are included in the proposed buffer under Phases I and II. Phase III buffer needs will be determined following Phase I and II. The identified buffer area will be protected through fee-simple ownership or less-than- fee-simple ownership such as conservation easements, or management agreements, depending on the level of protection and management required. The scenic qualities of the corridor and the water quality of the river may also be protected through local land-use policies.

Acquisition of Natural Heritage Priority Areas

Eight Natural Heritage Priority Areas identified in the Natural Heritage Program's inventory of the river corridor are included in the master plan for acquisition by the state of North Carolina (Figure VII-2). The eight contain 6,022 acres. Seven of these are in the designated *natural* river segment. Piney Island Natural Heritage Priority Area (537 acres) has already been acquired by the state of North Carolina, and the Net Hole Natural Heritage Priority Area and part of the Lower Buck Landing Swamp Natural Heritage Priority Area are in the acquisition process.

One of the eight Natural Heritage Priority Areas to be acquired is in the designated *scenic* river segment. This area is the Spring Branch Church Swamp, containing 616 acres.

Phase I:

Lower Buck Landing Swamp - 530 acres (partial acquisition pending)
Piney Island - 537 acres (acquired)
Net Hole - 837 acres (in the acquisition process)
Bluff Swamp - 1,268 acres

SUBTOTAL: 3,172 acres

Phase II:

Spring Branch Church Swamp: 616 acres
Princess Ann Swamp: 680 acres
Big Sandy Ridge: 376 acres
Fair Bluff Swamp: 1,178 acres

SUBTOTAL: 2,850 acres

TOTAL: 6,022 acres

Table VII-2. Phased Land Acquisition in Acres

Phase	Buffer		Natural Heritage Priority Areas		Recreational Development		Total Acres
I	Lower Buck Landing to Net Hole:	50	Lower Buck Landing Swamp:	530	Pea Ridge Headquarters:	430	
	Bluff Swamp to Princess Ann:	40	Piney Island:	537	Princess Ann:	100	
	Net Hole Swamp to Pea Ridge:	30	Net Hole Swamp:	837	SR 2121 Access (part of natural area acquisition)	-	
			Bluff Swamp:	1,268	Piney Island Canoe Camp (part of natural area acquisition):	-	
PHASE I TOTAL:		120		3,172		530	3,822
II	S.R. 1412/1203 to Chalk Banks:	10	Spring Branch Church Swamp	616	S.R. 1412/1203:	15	
	Chalk Banks to Spring Branch Church Swamp:	150	Princess Ann Swamp:	680	Chalk Banks Headquarters	500	
	Spring Branch Church Swamp to Airport Landing:	150	Big Sandy Ridge:	376	Airport Landing Canoe Camp:	15	
	Princess Ann Swamp to Fair Bluff Swamp:	185	Fair Bluff Swamp:	1,178			
PHASE II TOTAL:		585		2,850		530	3,965
PHASE I AND II SUBTOTAL:		705		6,022		1,060	7,787
III	Jacob Branch to L.R. Conservancy:	*90			Canoe Camp ± R.M. 27:	*	
	West of Lumber R. Conservancy:	*45			Canoe Camp ± R.M. 45:	*	
	L.R.C. Lands to S.R. 2121:	*220			Canoe Camp ± R.M. 75:	*	
	N.C. 904 to NC/SC State Line:	*145			Big Sandy Ridge Area Canoe Camp:	*	
					Fair Bluff at R.M. 112.8:	*	
PHASE III TOTAL:		* 500		0		*	500
TOTAL:		**1,205**		**6,022**		**1,060**	**8,287**

* Phase III acreage needs to be determined after Phase I and Phase II development.

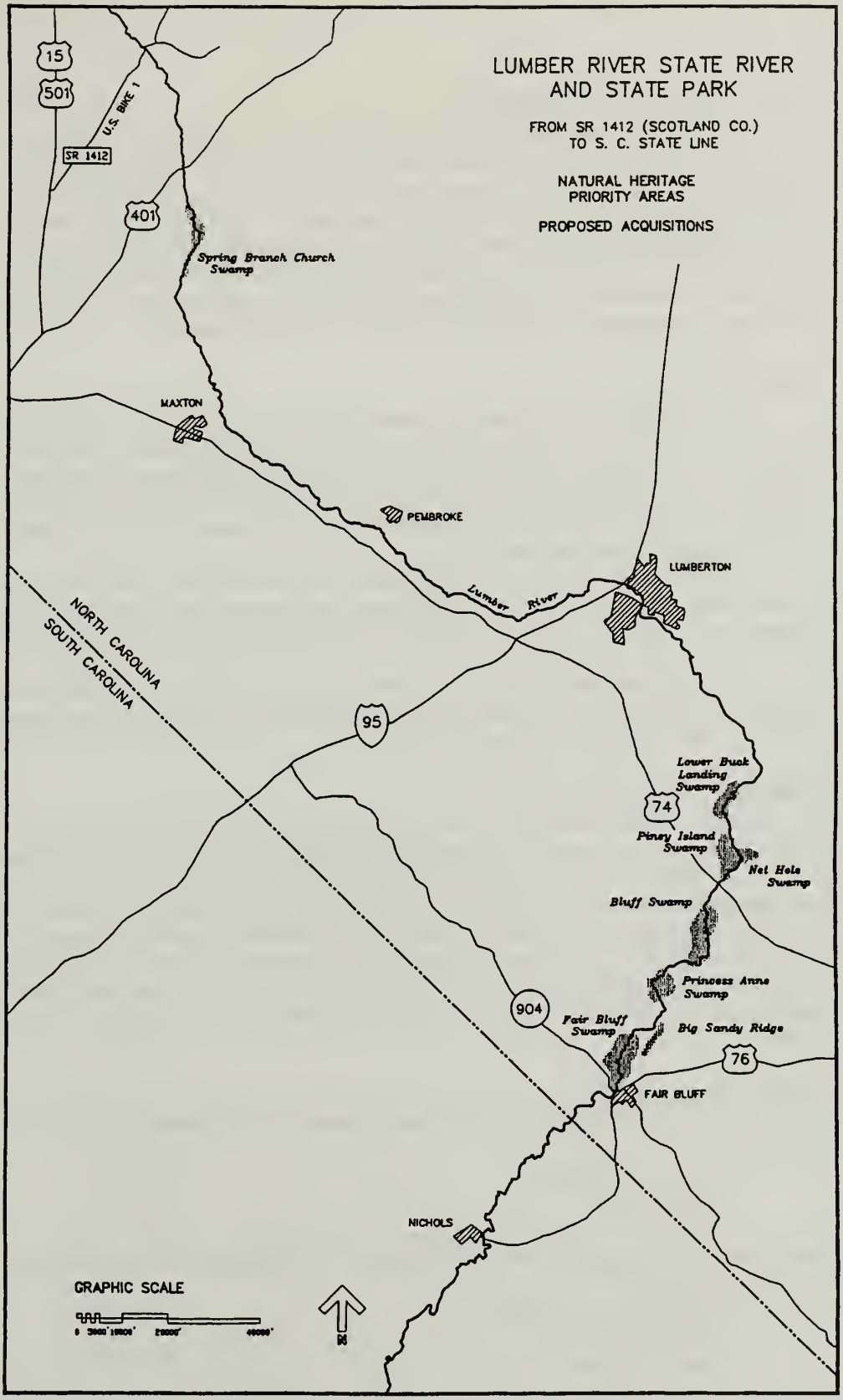

Figure VII-2. Natural Heritage Priority Areas, Proposed Acquisitions

State Park Access Area Acquisition

This master plan recommends two major development areas — a southern and a northern park headquarters — and three smaller development areas. The land necessary for these sites is approximately 1,060 acres (Table VII-2). The southern major development area is at Pea Ridge and will require about 430 acres. The northern major development area is at Chalk Banks and will require approximately 500 acres. The area needed for the three smaller state park areas is 130 acres: 15 acres at S.R. 1412/1203; 15 acres at the Airport Landing; and 100 acres at Princess Ann (Figure VII-3). Acquisition of these areas will fall under Phases I and II of this plan. Additional access areas will be identified for state park land acquisition following Phase I and II development.

Development

The sites identified for development are scattered along the 115 miles of the river. The two state park headquarters, each with a complex of park recreational facilities, living quarters, office, and maintenance shop, will be developed at Pea Ridge (south) and Chalk Banks (north). The northern headquarters will be primarily responsible for the river between the bridge-crossing at S.R. 1412/1203 and Lumberton. The southern headquarters will be primarily responsible for the river from Lumberton to the state line with South Carolina.

Recommended development includes construction of a visitor-interpretive center, restrooms, improved accesses to the river, canoe landings/rest stops, family camping areas, recreational vehicle camping areas, primitive camping areas, picnic areas and shelters, trails, appropriate parking facilities, residences, and maintenance areas.

A number of river access points, canoe campsites, and other recreational areas are recommended or already exist along the river. These areas and recommendations for their acquisition, development, and management are discussed in Chapter V of this plan.

State Park Development Phasing

Facilities will be developed by the North Carolina Division of Parks and Recreation in three phases. Phase I will concentrate on land acquisition and development on a section of the river from S.R. 2121 (R.M. 82.0) to Princess Ann (R.M. 100.3). The significant Natural Heritage Priority Areas and buffer will be protected in this *natural* part of the river with its outstanding scenic values. At the same time, park facilities will be developed, offering a good recreational experience and opportunity for a high-quality two-day float through this section of the river. Phase II will concentrate mainly on those areas from S.R. 1412/1203 (R.M. 0.0) to the Airport Landing (R.M. 18.8) and from Princess Ann (R.M. 100.3) to Fair Bluff (R.M. 112.0). Phase III will address areas not covered in the first two phases.

Phase I (R.M. 82.0 - R.M. 100.3):
River Access Area: S.R. 2121 (5 acres to be included in natural heritage priority area acquisition), R.M. 82.8

- Improved Boat Access
- Parking (10 cars)

Piney Island Canoe Campground (5 acres already acquired in 537-acre natural heritage priority area acquisition): R.M. 87.4

- Trail System with Boardwalks
- Primitive Canoe Camp
- Restroom Facilities

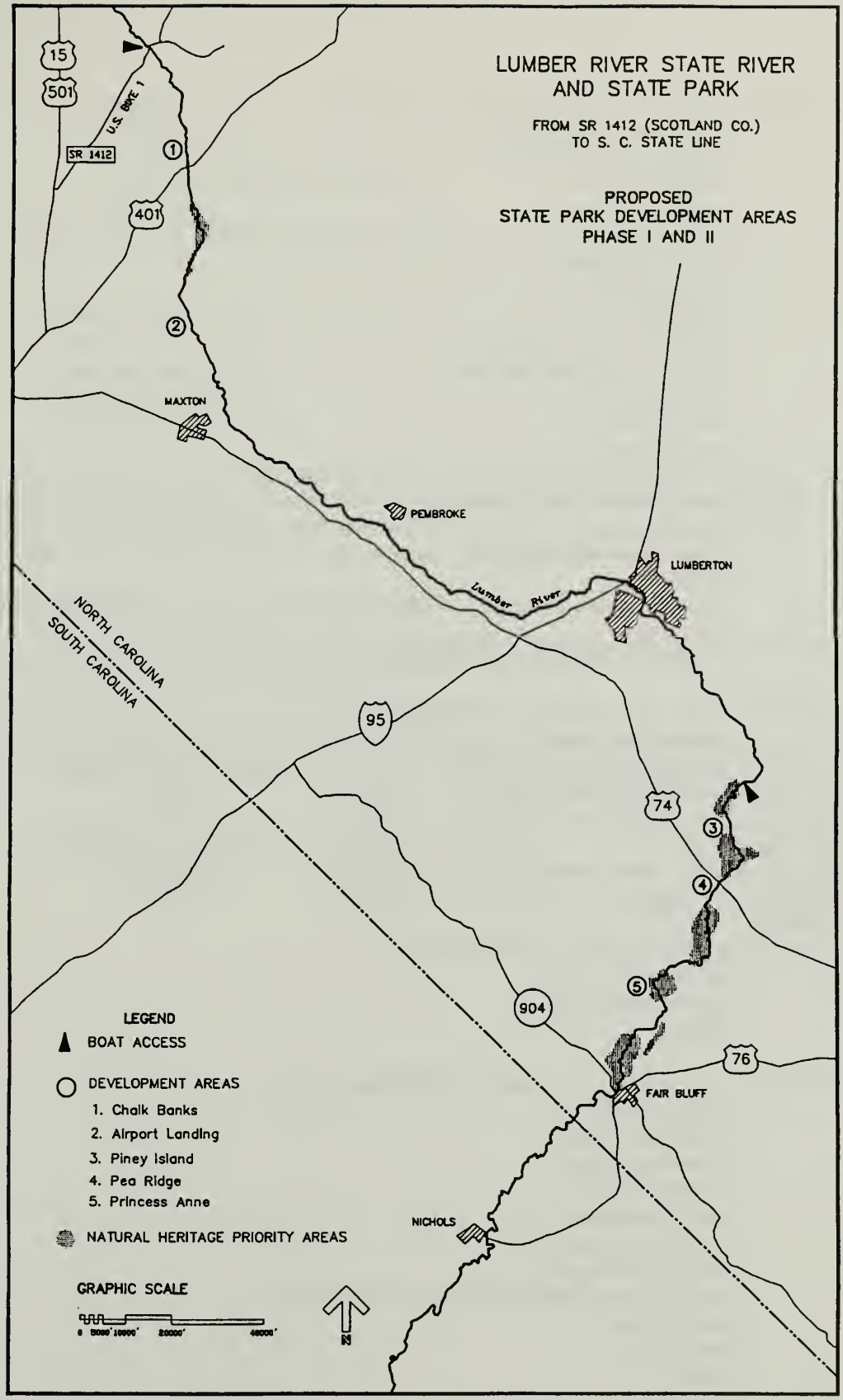

Figure VII-3. Proposed State Park Development Areas, Phases I and II

Southern Park Headquarters: Pea Ridge (430 acres), R.M. 92

- Office/Visitor Center/Auditorium
- Superintendent's Residence
- 2 Ranger Residences
- Maintenance Center
- Family Campground
- Group Campground
- Washroom/Restrooms
- Amphitheater
- Trail System with Boardwalks
- 6 Picnic Shelters (Large and Small)
- Group Picnic Area
- Family Picnic Area
- Open Play Areas
- Play Apparatus
- Dispersed Parking for 150 Cars
- Canoe Landing
- Primitive Canoe Campground
- Site Utilities
- Road Improvements and Parking
- Entrance Gate
- Demolition of Extraneous Site Structures

Princess Ann Recreation Area (100 acres): R.M. 100.3

- Improved Boat Launch
- Picnic Area with Tables and Shelter
- Family/Canoe Campground
- Restroom Facilities
- Parking
- Visitor Contact Station

Phase II

Boating Access at S.R. 1412/1203 (15 acres): R.M. 0

- Improved Boat Launch
- Kiosk/Information Sign
- Parking

Northern Park Headquarters: Chalk Banks Area (500 acres), R.M. 5.3

- Office/Auditorium
- Maintenance Complex
- Community Building
- 2 Ranger Residences
- Family Campground
- Group/Canoe Campground
- Washrooms/Restrooms
- Picnic Facilities: 4 Shelters and Dispersed Picnic Tables
- Open Play Area
- Play Apparatus
- Parking
- Canoe Landing
- Canoe Camp (15 sites)
- Trail with Boardwalk

- Site Utilities
- Road Improvements
- Entrance Gate
- Demolition of Extraneous Site Structures

Airport Landing Canoe Camp (15 acres at R.M. 18.8)

Phase III:

Canoe Camp near R.M. 27
Canoe Camp near R.M. 45
Canoe Camp near R.M. 75
Canoe Camp near R.M. 105
Fair Bluff Site, R.M. 112.8

Development of Phase III will take place after the first two development phases. Development in Phase III should provide canoe camps between the northern and southern headquarters, linking the two areas and enabling multi-day trips on the river. It will also focus on cooperative efforts with landowners and local governments to obtain additional river corridor protection.

Acquisition and Development Costs

The priorities for recreational development and acquisition are given above. The cost of these is estimated to be $16,735,800, as outlined in Table VII-3.

Table VII-3. Acquisition and Development Costs

Acquisition/Development	Phase I	Phase II	Phase III	Total
Buffer	$ 84,000	$ 409,500	$ 350,000	$ 843,500
Natural Communities	$2,220,400	$1,995,000	-0-	$ 4,215,400
Headquarters/Recreation Lands	$1,272,000	$1,272,000	?	$ 2,544,000
Developments	$5,036,900	$4,096,000	?	$ 9,132,900
Total	**$8,613,300**	**$7,772,500**	**$ 350,000**	**$16,735,800**

Acknowledgements

In the fall of 1991, Carolina Power and Light Company issued a challenge grant of $40,000 to the Lumber River community for the development of a master plan for the park. Led by the Lumber River Park Advisory Committee, matching funds were raised from individuals, businesses and governments in Robeson, Columbus, Scotland and Hoke counties. Shortly thereafter, N.C. State University began developing the master plan, working in cooperation with the Lumber River State Park Citizens Advisory Committee and the N.C. Division of Parks and Recreation.

Thanks to the Following:

The Lumber River State Park Citizens Advisory Committee

Mr. Gilbert Anderson
Dr. Andrew N. Ash
Mr. Everett Davis, Secretary
Mr. Haynes Deese
Mr. Bob Gaddy, Treasurer
Mr. David Hammond
Mr. Charles D. Isom (Danny), Chairman
Mrs. Marjorie Johnson
Dr. Bruce Mattox
Mr. Kirk Mattson
Mr. Lonnie Maynor, Vice-Chairman
Mr. Joseph R. McDonald
Mr. Dickson McLean, Jr.
Mr. John Memory
Dr. Colin Osborne, III
Mr. David Scott

Carolina Power and Light Company

N.C. State University

Carolyn D. Argentati
Aram Attarian
Ronald Bickram
Gary Blank
Hugh Devine
Julia A. Enman
Jean-Marie McManus
Melanie Orwig
Phil Rea
Roger Warren

. . . and numerous other individuals whose time and talents went into the development of this master plan.

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